Owners Manual

LARGE CONCRETE SAWS

MODELS:

C3120	**C6120**
C3126	**C6126**
C3130	**C6130**
	C6136

Model Serial Numbers are in a

Yr/Mo/Day/ Number Built Sequence

EX: 070211007 Means It was

Built Feb 11 2007 7TH saw bulit

FORM C6120 7/07

NORTON

WARRANTY

Norton warrants all products manufactured by it against defects in workmanship or materials for a period of one (1) year from the date of shipment to the customer.

The responsibility of Norton under this warranty is limited to replacement or repair of defective parts at Norton's Indianapolis, Indiana Distribution Center, or at a point designated by it, of such part as shall appear to us upon inspection at such point, to have been defective in material or workmanship, with expense for transportation borne by the customer.

In no event shall Norton be liable for consequential or incidental damages arising out of the failure of any product to operate properly.

Integral units such as **gasoline engines**, **electric motors**, **batteries**, **tires**, **transmissions**, **etc**., are excluded from this warranty and are subject to the prime manufacturer's warranty.

This warranty is in lieu of all other warranties, expressed or implied, and all such other warranties are hereby disclaimed.

Important: Before placing equipment in operation, record the following information.

MODEL:_____ SERIAL NO:_____
PURCHASE FROM:_____
ADDRESS:_____
CITY:_____ STATE:_____ ZIP:_____
TELEPHONE NO:_____

Before using this equipment, make sure that person using it read and understand the instructions in this owners manual.

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm

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Read Owners Manual Before Use

Safety Alert Symbol: Information Following This Symbol Is Very Important.

I. PREPARATION

A. Safety Precautions

Important! The following safety precautions must always be observed.

Hazard Symbols

Fuel (gasoline) is extremely flammable and its vapors can explode if ignited. Store gasoline only in approved containers; in well ventilated; unoccupied areas approved; and away from sparks or flames. Do not fill the saw fuel tank while the engine is hot or running. Do not start the engine near spilled fuel. Never use the fuel as a cleaning agent

Engine components can get extremely hot from operation. To prevent burns, do not touch the engine or related parts while the engine is running or immediately after it is turned off. Never operate the engine with any heat shields or guards removed.

Keep all guard in place when operating any piece of equipment

Keep hands, feet, hair, and clothing away from all rotating parts

Lethal Exhaust Gas: use only in well ventilated areas. Engine exhaust gases contain poisonous carbon monoxide which is odorless, colorless, and can cause death if inhaled. Avoid inhaling exhaust fumes, and never run the engine in a closed building or confined area

Never tamper with the governor components of settings to increase the maximum speed. Severe personal injury and damage to the engine or equipment or equipment can result if operated at speed above maximum. Always obey the maximum speed rating of blade.

DO NOT LIFT THE SAW BY THE HANDLE BARS

⚠ WARNING

Dust and Silica Warning

Grinding/cutting/drilling of masonry, concrete, metal and other materials can generate dust, mists and fumes containing chemicals known to cause serious or fatal injury or illness, such as respiratory disease, cancer, birth defects or other reproductive harm. If you are unfamiliar with the risks associated with the particular process and/or material being cut or the composition of the tool being used, review the material safety data sheet and/or consult your employer, the material manufacturer/supplier, governmental agencies such as OSHA and NIOSH and other sources on hazardous materials and make certain to comply with all product warnings and instructions for the safe and effective use of the material being cut. California and some other authorities, for instance, have published lists of substances known to cause cancer, reproductive toxicity, or other harmful effects.

Control dust, mist and fumes at the source where possible. In this regard use good work practices and follow the recommendations of the manufacturer/supplier, OSHA/NIOSH, and occupational and trade associations. Water should be used for dust suppression when wet cutting is feasible. When the hazards from inhalation of dust, mists and fumes cannot be eliminated through engineering controls such as vacuum and/or water mist, the operator and any bystanders should always wear a respirator approved by NIOSH/MSHA for the material being cut.

Use Approved:

Eye Protection

Hearing Protection

Respiratory Protection

Head Protection

A. Safety Precautions

1. Before mounting any blade on the saw: the blade should be inspected for any damage which might have occurred during shipment, handling or previous use.
2. The blade collars and arbors should be cleaned and examined for damage before mounting the blade.
3. The blade must be properly fitted over the arbor with the drive pin on the outside collar projecting through the drive pin hole on the blade and inside collar.
4. The blade shaft bolt which is a left hand thread bolt on the operator's right hand side and right hand thread on the operator's left hand side must be tightened securely against the outside blade shaft collar.
5. The blade must be operated within the specified maximum operating speed listed on the blade.
6. Turn water control valve to full to provide adequate coolant (5 to 8 gallons per minute) for diamond blades and wet cutting abrasive blades. Insufficient coolant could result in severe blade breakage or diamond segment separation.
7. The blade guard must be in place with the nose guard down and locked when the saw is running.
8. The operator should wear safety glasses and any other appropriate safety equipment.
9. When starting the saw, the operator should stand away and to the side of the blade.
10. If for any reason the saw should stall in the cut, raise the blade out of the cut. Check the outside blade shaft collar and nut for tightness. Inspect the blade for damage before restarting the saw. Use caution when resuming a cut. Be certain that the blade is in alignment with the previous cut.
11. During cutting operations do not exert excess side pressure on the handles as a method of steering. Do not force the blade into the cut by lowering the blade too fast or by pushing the saw too fast.

You Are Responsible For Your Safety!!!

I. PREPARATION

B. Assembly

Norton concrete saws are shipped partially assembled to protect parts of the saw which are subject to damage in transit. To prepare the saw for operation the following procedure is required.

1. Inspect the saw for shipping damage. If any damage is found, contact the shipper immediately and file a freight claim. The Norton Company is not responsible for any freight-related damages.

2. Remove the saw from the pallet.

3. Place the one handle bars into each of the Handle Bar Retaining Hole located on the rear left and rear right hand sides of the console. NOTE: Never lift the saw by the Handle Bars.

4. Insure that the On/Off key is in the OFF position.

5. Remove the rear console cover and check the Battery for Electrolytes NOTE: Batteries are shipped with out Electrolytes.

Warning: The electrolyte is sulfuric acid. Read and observe all instructions and safety precautions on container. Wear safety goggles while handling and pouring the electrolyte. The electrolyte should be added to the battery in an area where running water is quickly available for rinsing, should it come in contact with the body. Before disposing of the container, empty and rinse thoroughly with water.

6. Attach the Red Battery Cable to the Positive Battery Terminal and attach the Black Battery Cable to the Negative Battery Terminal.

7. Reattach the Rear Console Cover.

8. Make sure the hydraulic pump is filled with fluid (See section on hydraulic pumps).

9. Check the engine oil. The engine has been filled with oil and test run at the factory and should not require the addition of oil. Oil capacity of crankcase is 6.4 U.S. quarts (6.1 liters).

10. Fill the fuel tank with Diesel fuel. NOTE: Units are shipped with out fuel.

11. Attach the Muffler and Muffler Retaining Clamp.

Read and understand the remaining sections of this Owners Manual. NOTE: Do not install the blade until it is time to use the saw. ANSI regulations prohibit the transportation of any concrete saw with the blade installed.

C. C31xx Concrete Saw Specifications

Dimensions/Weight	C61xx	
Length (Transport)	58 inch(1,473 mm)	
Width	36 inch (914 mm)	
Height	55 inch (1,397 mm)	
Weight Crated	1,530 lbs (694 kg)	
Weight Uncrated	1,420 lbs (644 kg)	
Engine		
Engine Mfg.	Deutz	
Model	F2L2011	
Spec No.	7483	
Number of Cylinders	2	
Engine Type	Naturally Aspirated	
Bore	3.7 inch (94 mm)	
Stoke	4.4 inch (112 mm)	
Compression Ratio	19:1	
Displacement	94.8 in^3 (1,554 cm^3)	
Horse Power	31 HP (23.1KW	
Max Torque	100.3 lbs-ft (136 Nm)	
Cooling System	Air	
Oil Capacity	8.45 qt (8 liters) approx.	
SAE Oil Type	20 W 20	
Fuel Capacity with Filter	9 Gallons (34 liters)	
Fuel Type	Diesel	
Low Oil Sensor	Yes	
Air Filtration	Three Stage Deutz	
Characteristics		
Blade Size	Maximum Depth	Blade Shaft RPM
20 inch (508 mm)	8-5/8 inch (219 mm)	2125 RPM
26 inch (660 mm)	10-5/8 inch (270 mm)	2050 RPM
30 inch (762 mm)	12-5/8 inch (321 mm)	1970 RPM
Arbor Bore	1 inch (25.4 mm)	
Depth Control	Electro-Hydraulic	
Depth Lock	Standard	
Depth Gauge	Standard	
Number Of V-Belts	10 Grooves (qty=2 Five (5) Groove Powerband)	
Belt Type	5/3VX600 Powerband	
Blade Guard Type	Hinged, All Steel Construction	
Right or Left Side Cutting	Yes	
Lifting Bale	Built In	
Front Wheel Size (DxWxB)	8” x 3” x1” (203 x 76 x 25.4mm)	
Rear Wheel (DxWxB)	10” x 3” x 1-1/4” (254 x 76 x 31.7mm)	
Handle Bars	Yes	
Water Hose Connector	Standard Garden Hose With Flow Control Valve	

C. C61xx Concrete Saw Specifications

Dimensions/Weight	C61xx	
Length (Transport)	58 inch(1,473 mm)	
Width	39-3/4 inch (1,010 mm)	
Height	55 inch (1,397 mm)	
Weight Crated	1,590 lbs (721 kg)	
Weight Uncrated	1,540 lbs (700 kg)	
Engine		
Engine Mfg.	Deutz	
Model	BF3L2011	
Spec No.	7482	
Number of Cylinders	3	
Engine Type	Turbo Charged	
Bore	3.7 inch (94 mm)	
Stoke	4.4 inch (112 mm)	
Compression Ratio	17.5:1	
Displacement	142.2 in^3 (2,331 cm^3)	
Horse Power	61 HP (45.5 KW)	
Max Torque	100.3 lbs-ft (136 Nm)	
Cooling System	Air	
Oil Capacity with Filter	8.45 qt (8 liters) approx.	
SAE Oil Type	20 W 20	
Fuel Capacity	9 Gallons (34 liters)	
Fuel Type	Diesel	
Low Oil Sensor	Yes	
Air Filtration	Three Stage Sy-Klone	
Characteristics		
Blade Size	Maximum Depth	Blade Shaft RPM
20 inch (508 mm)	8-5/8 inch (219 mm)	2560 RPM
26 inch (660 mm)	10-5/8 inch (270 mm)	2469 RPM
30 inch (762 mm)	12-5/8 inch (321 mm)	2194 RPM
36 inch (914 mm)	14-5/8 inch (371 mm)	1340 RPM
48 inch (1219 mm)	20 inch (508 mm)	800 RPM
Arbor Bore	1 inch (25.4 mm)	
Depth Control	Electro-Hydraulic	
Depth Lock	Standard	
Depth Gauge	Standard	
Number Of V-Belts	10 Grooves (qty=2 Five (5) Groove Powerband)	
Belt Type	5/3VX600 Powerband	
Blade Guard Type	Hinged, All Steel Construction	
Right or Left Side Cutting	Yes	
Lifting Bale	Built In	
Front Wheel Size (D x W x B)	8” x 3” x1” (203 x 76 x 25.4mm)	
Rear Wheel (D x W x B)	10” x 3” x 1-1/4” (254 x 76 x 31.7mm)	
Handle Bars	Yes	
Water Hose Connector	Standard Garden Hose With Flow Control Valve	

II. OPERATION

Read and understand this manual before running or using the machine!

A. Installing the Blade

1. Insure that the Ignition Power Key Switch is in the OFF position and then insert the Blade Shaft Locking Pin into the Blade Shaft Locking hole.

2. Remove the blade shaft screw, (NOTE: Operator's Right side is a left hand thread and the Operator's Left side is right hand thread), and remove the outside collar.

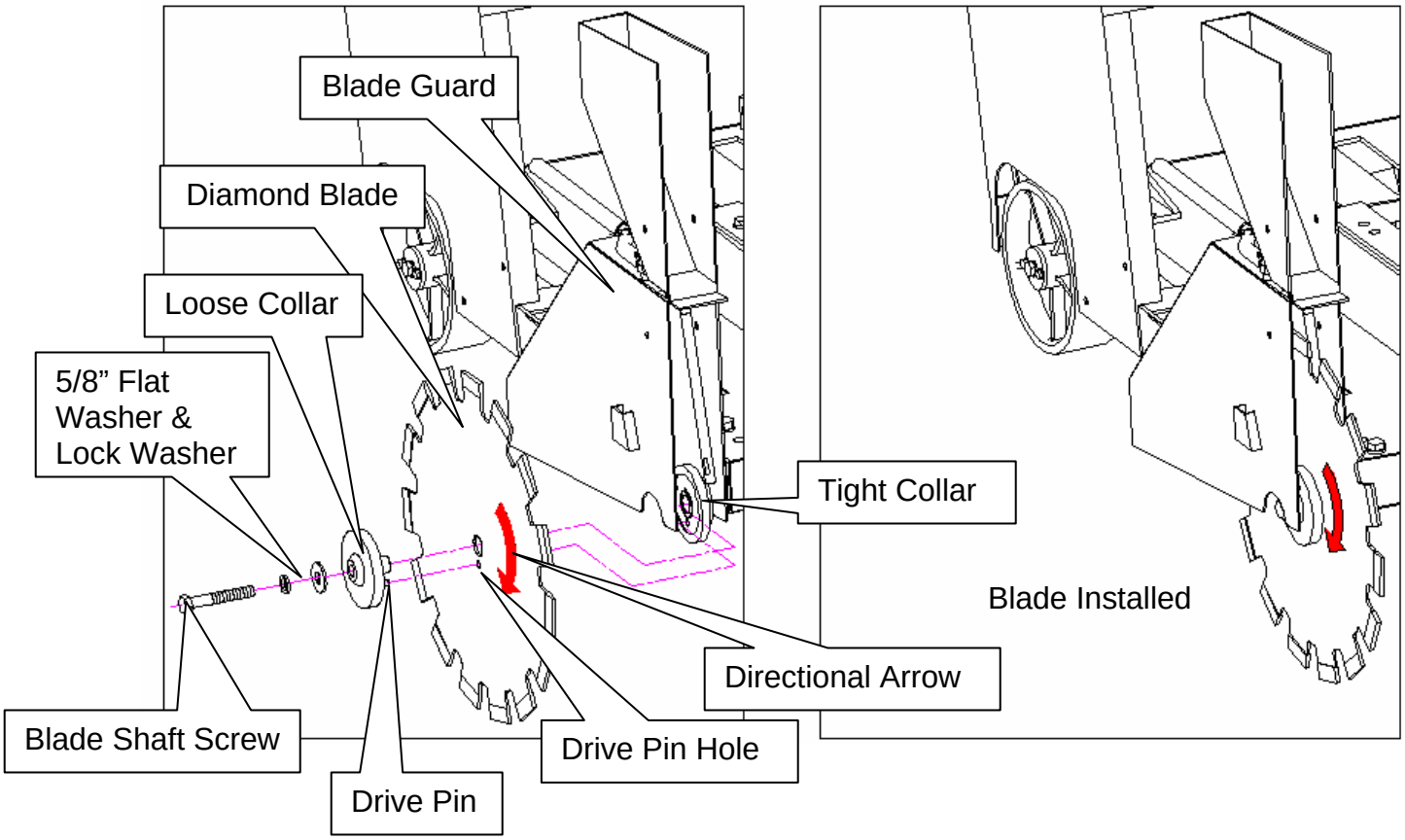
3. Clean off any foreign particles on the clamping surfaces of both collars and on the mounting surface of the blade and inspect the both collars for any damage and also inspect the drive pin for damage. Replace any damage collars or pins before using the machine.

4. Inspect the blade for any damage, cracks, burnt or blue areas, missing segments, and roundness of blade. Also inspect the arbor hole and drive pin hole to insure both are round. If any problems are found do not use the blade. In addition check that the blade is the correct specification for the application.

5. Place the blade on the blade shaft, lining up the drive pin hole in the blade with the drive pinhole in the inside collar. NOTE: Diamond blades are direction dependent so verify the direction of rotation of the blade. The machine will rotate the blade into the work surface (down cut). Place the blade guard in position and insert the blade guard retainer pin. Never operate the saw without the blade guard or blade guard retainer pin in position ***See the following diagram*** **Blade Shaft Installation** on page 10.

6. Slide the outside blade shaft collar onto the blade shaft. The drive pin on the outside collar must project through the drive pin hole in the blade and into the inside collar.

7. Tighten the blade shaft screw (counter-clockwise for the Operator's Right Hand side and clockwise for the Operator's Left hand side) with the 5/8" Flat Washer and 5/8 Lock Washer securely against the outside collar and remove the Blade Shaft Locking Pin.

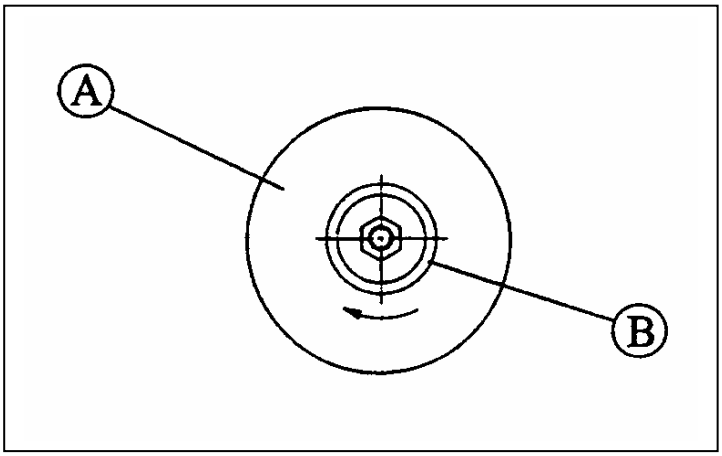


Blade Shaft Installation

Observe rotation arrow on blade and do not exceed maximum RPM stamped on blade.

To meet ANSI safety standards, larger diameter blade collars are required for large diameter blades. Information is available upon request.

NOTE: Organic bonded blades (A) must have a blotter. The blotter (B) must extend past the blade collar contact area as shown.



Changing the Blade Side:

1. Insure that the Ignition Power Key Switch is in the OFF position and then insert the Blade Shaft Locking Pin into the Blade Shaft Locking hole.

2. Remove the blade shaft screw, (NOTE: Operator's Right side is a left hand thread and the Operator's Left side is right hand thread), and remove the outside collar.

3. Clean off any foreign particles on the clamping surfaces of both collars and on the mounting surface of the blade and inspect the both collars for any damage and also inspect the drive pin for damage. Reinstall the Blade Shaft Collars to the machine. **NOTE**: Replace any damage collars or pins before using the machine.

4. Inspect the blade for any damage, cracks, burnt or blue areas, missing segments, and roundness of blade. Also inspect the arbor hole and drive pin hole to insure both are round. If any problems are found do not use the blade. In addition check that the blade is the correct specification for the application.

5. Remove the Blade Guard by Pulling the Blade Lock Pin out of the Bayonet Mount and lifting the Blade Guard off of the Bayonet Mount.

6. Remove the Blade Shaft Guard by removing the Blade Shaft Guard Locking Pin from the Bayonet Mount and then lift the Blade Shaft Guard off of the Bayonet Mount.

7. Place the blade on the blade shaft, lining up the drive pin hole in the blade with the drive pinhole in the inside collar. NOTE: Diamond blades are direction dependent so verify the direction of rotation of the blade. The machine will rotate the blade into the work surface (down cut). Place the blade guard in position and insert the blade guard retainer pin. Never operate the saw without the blade guard or blade guard retainer pin in position ***See the following diagram*** **Blade Shaft Installation** on page 11.

6. Slide the outside blade shaft collar onto the blade shaft. The drive pin on the outside collar must project through the drive pin hole in the blade and into the inside collar.

8. Tighten the blade shaft screw (counter-clockwise for the Operator's Right Hand side and clockwise for the Operator's Left hand side) with the 5/8" Flat Washer and 5/8 Lock Washer securely against the outside collar and remove the Blade Shaft Locking Pin.

9. Attach the Blade Guard by sliding the Blade Guard Attachment Loop over the Bayonet Mount, attach the Blade Guard Lock Pin, and close the Hinged Blade Guard Nose.

10. Attach the Blade Guard by sliding the Blade Shaft Guard Attachment Loop over the Blade Guard Bayonet Mount and then attach the Blade Shaft Guard Lock Pin.

Multiple Mounted Blades:

Multiple mounted blades must be separated by a machined spacer. The diameter of the spacer cannot be less than the diameter of the relieved blade collars. The blade pin must pass through all blades and spacers, and seat itself in the inside blade collar.

Part #	Description
N1B0171	Guard, Blade 14” x 4-3/4” Wide 2” Stack
N1E0350	Collar Loose extended 4-1/4” Long (Cut To Length)
N1E0301	Spacer Blade ϕ8” x 0.03125 Thick
N1E0302	Spacer Blade ϕ8” x 0.0598 Thick
N1E0303	Spacer Blade ϕ8” x 0.1406 Thick
N1E0304	Spacer Blade ϕ8” x 0.1345 Thick
N1D0315	Bolt Extension 5/8”-11 x 7” (4” Thread) LH

NOTE: Only 14” A Blade Guard Is Available. The Spacers Will Allow Cuts Up TO 3” Deep.

For The Best Performance Only Use Norton Diamond Blades

B. Aligning the Pointer:

This machine is equipped with an Expandable Front Pointer and Rear Pointer. Both Pointers can be used on either side of the machine.

1. Carefully mark a straight line on a smooth level surface.

2. Move the machine so that the blade and the rear pointer are aligned with the straight line drawn in step 1. NOTE: If the Blade is not on the same side of the machine as the Pointer, remove the Front Pointer Rod from the Front Pointer Frame and reattach it so that it is on the same side as the Blade.

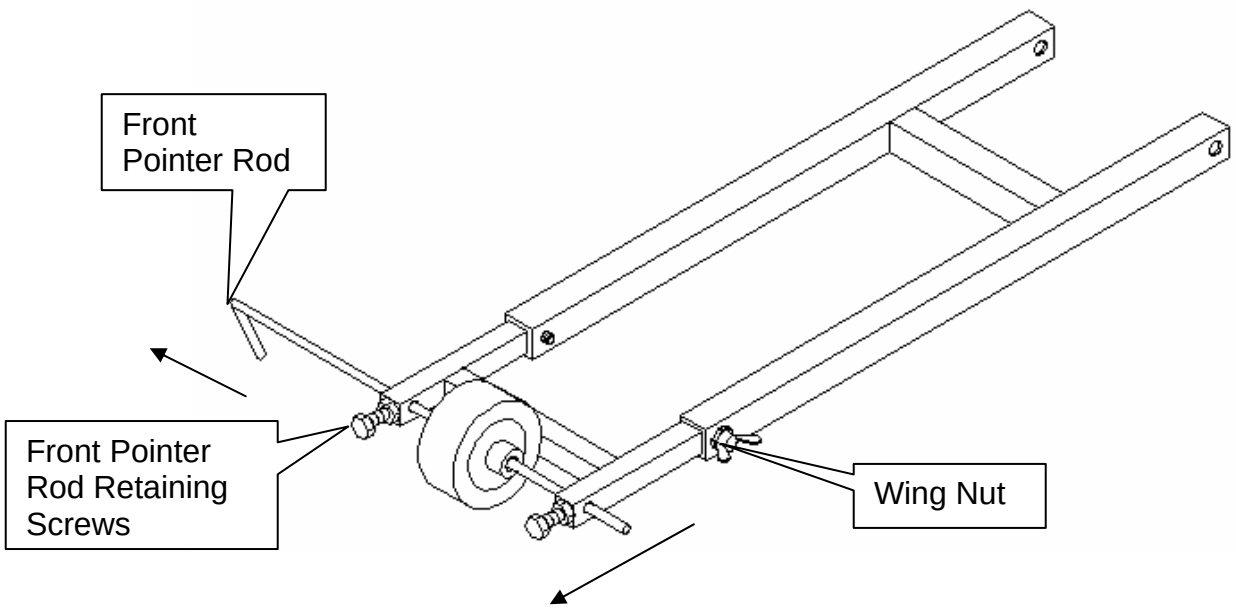
3. Rotate the pointer so that the wheel is touching the ground.

4. Align the Front Pointer Rod by with the straight line by loosening the Front Pointer Rod Retaining Screws and moving the Front Pointer Rod.

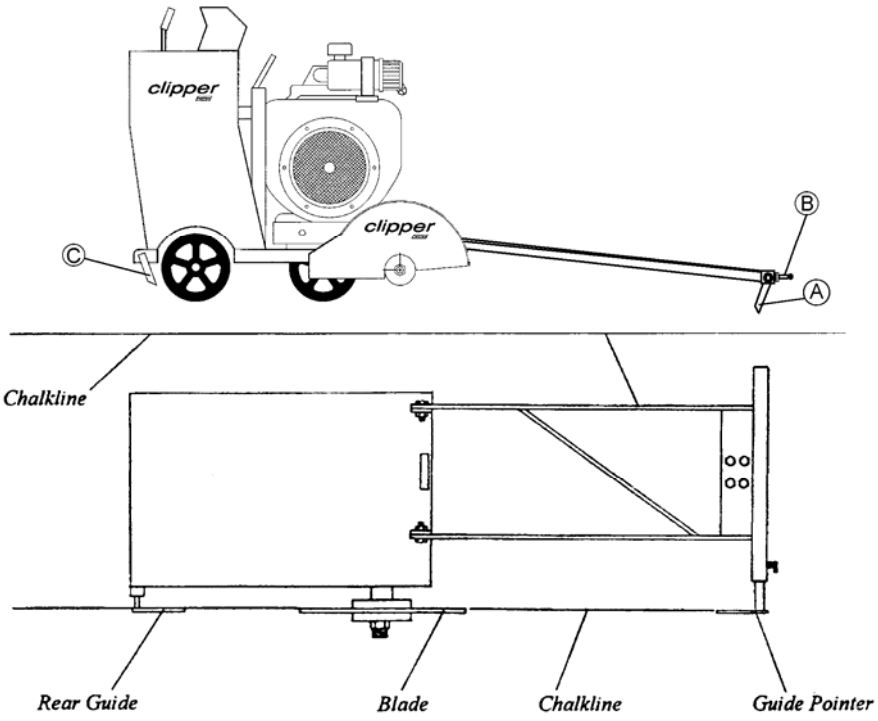
5. Retighten the Front Pointer Rod Retaining Screws.

6. To Expand the Front Pointer Frame, remove the Wing Nuts and pull the Front Pointer Extension out way from the saw to the desired length.

7. Replace and tighten the Wing Nuts.



Front Pointer Assembly



C. Controls and Functions

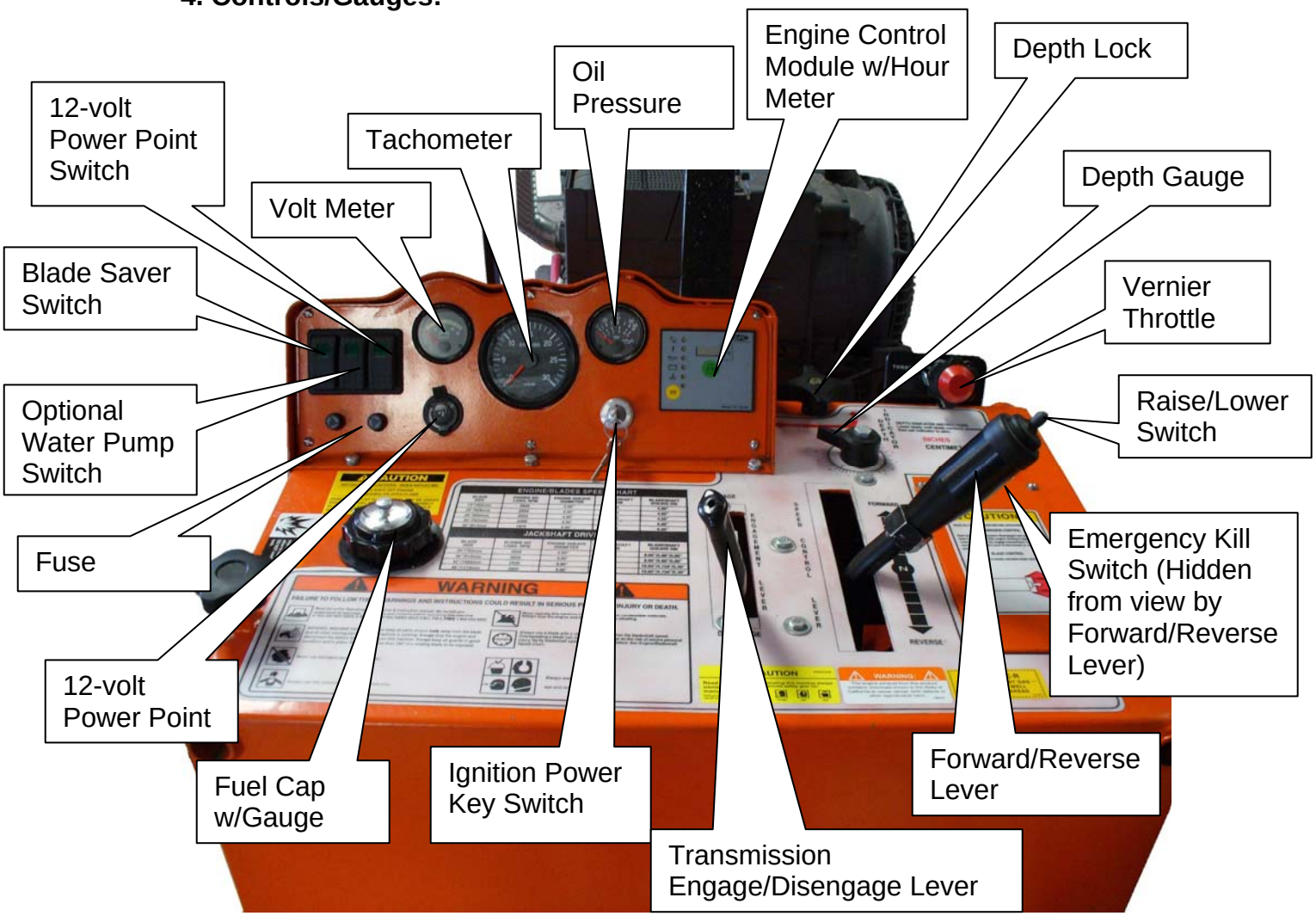
Prior to attempting to operate the engine, read the information contained in the engine owner's manual. An engine owner's manual is supplied with every gasoline powered concrete saw.

1. **Check Oil:** Add oil if low. Refer to the Deutz engine owner's manual for the recommended SAE viscosity grades. Capacity of oil is 6.4 qt (6.1 liters)

2. **Check Fuel:** Fill if low. Use only Diesel Fuel rated for on Highway use. **Never use a gasoline or an oil and gasoline mixture!**

3. **Air Cleaner:** Never run the engine without the air cleaner! Rapid engine wear will result from contaminants being drawn through the carburetor and into the engine.

4. **Controls/Gauges:**



Location of Controls and Gauges

Insure that the operator is familiar with the control and gauge locations and functions before proceeding:

Control and Gauge locations and function Chart

Item	Type	Function
Engine Control Module w/Hour Meter	Control	Starts Engine, LED warning indicators and will shut the engine down in the event of low oil, over temperature, engine over speed.
Depth Lock	Control	Allows operator to cut at a preset depth
Depth Gauge	Control	Indicates cutting depth
Vernier Throttle	Control	Precise Engine speed control. Pull out or twist.
Raise/Lower Switch	Control	Raise or lower blade into work surface. To Raise move the switch to the rear of the saw. To lower move the switch forward.
Emergency Kill Switch	Control	Kills Engine when activated
Forward/Reverse Lever	Control	Controls direction and speed of machine
Transmission Engage/Disengage Lever	Control	Engages or Disengage Transmission. NOTE: Only Engage the Transmission when the Forward/Reverse Lever is in the Neutral Position. Engaging the Transmission when the Forward/Reverse Lever is not in the Neutral Position can damage the Transmission Jackshaft Gear
Ignition Power Key Switch	Control	Energize Engine/Engine Gauge system and Accessory Control System. Turns the machine off.
Fuel Cap w/Gauge	Gauge	Shows current fuel level
12-volt Power Point	Control	Auxiliary power source for 12-volt accessories such as: Light Kit. Can be used to charge a cell phone
Fuse	Control	Left side fuse protects the Accessory systems. Right side fuse protects the Engine Control System. All fuse are AGC Type Fuse 1/4" DIA x 1-1/4" Long, 15A
Optional Water Pump Switch	Control	Controls optional Water Pump. NOTE: All machines will have the switch installed at the factory. The water pump is a dealer installed option.
Blade Saver Switch	Control	Activates the Blade Saver Switch (Water Pressure Switch) System. When activated the Blade Saver Switch will shut the engine off if low water pressure is used.

Item	Type	Function
12-volt Power Point Switch	Control	Activates the 12-volt Power Point
Volt Meter	Gauge	Displays the charging status of the alternator
Tachometer	Gauge	Displays the Engine RPM
Oil Pressure	Gauge	Displays the Engine Oil Pressure in PSI

5. Starting the Engine:

A. Insure that the blade is installed properly

B. Insure that the blade is not touching any object or ground

C. Insure that all Guards are in places and are properly attached to the machine.

F. Insure that the work area is clear of any hazards

G. Use Approved:

Eye Protection

Hearing Protection

Respiratory Protection

Head Protection

H. Connect Water supply to Garden Hose Water swivel located on the rear of the machine

I. Test Water system by opening and closing the water control value located on the same side as the blade. Water should run out of the water tubes located in the blade guard. **See section: *C. Water Supply*** on page 18 for more details.

J. Pull the Emergency Kill Switch up to insure that it is not active. If a problem occurs and it is required to stop or kill the engine press the Emergency Kill Switch.

K. Turn the Ignition Power Key Switch to the on position

L. Press the START button on the Engine Control Module to crank the engine. Release the START button when the engine begins to run.

M. Allow the engine to warm to operating temperature before use.

N. To adjust the engine speed either:
   a. Press the small button located in the center of the Vernier Throttle Control and Pull the large knob of the Vernier Throttle Control towards the rear of the machine to increase the engine speed.
   b. Rotate the large knob of the Vernier Throttle Control counter clockwise to increase the engine speed, and rotate the large knob clockwise to decrease the engine speed. Rotating the knob allows for precise adjustments of the engine speed.

O. To turn the engine off turn the Ignition Power Key Switch to the off position.

6. Engine Speed: Always run the engine and the proper speed for the blade being used. Never run the blade at a higher speed that it is rated for. See the Blade Speed chart located on the machine's console or located in the manual under the heading "Operating the Saw"

To adjust the engine speed either:
   A. Press the small button located in the center of the Vernier Throttle Control and Pull the large knob of the Vernier Throttle Control towards the rear of the machine to increase the engine speed.
   B. Rotate the large knob of the Vernier Throttle Control counter clockwise to increase the engine speed, and rotate the large knob clockwise to decrease the engine speed. Rotating the knob allows for precise adjustments of the engine speed.

Straight Drive 31 & 61 HP:

Blade Diameter	Engine RPM	Engine Pulley Diameter	Blade Shaft RPM	Blade Shaft Pulley Diameter	Blade Collar Diameter
14" (356mm)	2800	4.0 inch (102 mm)	2560	4.38 inch (111mm)	4.5 inch (114mm)
20" (508mm)	2700	4.0 inch (102 mm)	2469	4.38 inch (111mm)	4.5 inch (114mm)
26" (660mm)	2400	4.0 inch (102 mm)	2194	4.38 inch (111mm)	4.5 inch (114mm)
30" (762mm)	2600	4.0 inch (102 mm)	1340	7 inch (178mm)	6 inch (152mm)
36" (914mm)	2500	4.0 inch (102 mm)	1290	7 inch (178mm)	6 inch (152mm)

Jackshaft Drive 61HP:

Blade Diameter	Engine RPM	Engine Pulley Diameter	Blade Shaft RPM	Blade Shaft Pulley Diameter	Blade Collar Diameter
42 inch (1067mm)	2800	4.0 inch (102 mm)	890	6 inch (152mm)	8 inch (203mm)
48 inch (1219mm)	2500	4.0 inch (102 mm)	800	6 inch (152mm)	8 inch (203mm)

D. Water Supply

Pressurized source: Turn the water control to full "ON" when using wet cutting blades. The required flow rate is 5 to 8 gallons per minute.

Optional Water Pump: The optional water pump is centrifugal pump designed to boost the flow rate of the water. In order for the optional water pump to work correctly the system requires a pressurized water source or the water source must be above the pump. The optional water pump will not draw water from a supply tank. The part number for the optional water pump kit is 237243.

1. Centrifugal pumps have a single rotating impeller. Liquid enters at the center and is thrown outward radically by the centrifugal force. The impeller is not in contact with other parts resulting in quiet efficient pumping action. This pump is not self priming. It must be located below the liquid level so liquid will flow to it by gravity. Air traps in piping must be avoided. Avoid down loops where air can be trapped.

2. Excessive system pressure above 15 P.S.I. is not recommended as he seal could be forced out of the pump housing. If water is to be pumped to the saw; always place an inline shut-off valve in front of the water pump.

3. Replacement Water Pump Seal Kit: Part Number 107523

E. Operating the Saw

Before beginning inspect the work area, machine, and blade for problems or hazards. Some areas may have underground utilities (water, gas lines, or electrical lines) located and mark all utilities before beginning. Do not run this machine or any internal combustion engine indoors or underground with out proper ventilation and a proper exhaust system for indoors or underground usage. The machine is not supplied with the proper exhaust for indoors or underground usage.

Lethal Exhaust: Gas use only in well ventilated areas. Engine exhaust gases contain poisonous carbon monoxide which is odorless, colorless, and can cause death if inhaled. Avoid inhaling exhaust fumes, and never run the engine in a closed building or confined area.

Use Approved:

Eye Protection

Hearing Protection

Respiratory Protection

Head Protection

1. To install the blade follow the instructions located in section ***A. Installing the Blade*** (page 10 to 12) of this manual. Also read and understand this complete manual beginning.

2. Check the Engine Oil level.

3. Disengage the Self-propelling unit by moving the Transmission Engage/Disengage lever fully up and place the Forward/Reverse lever in the neutral position (middle).

4. Raise the saw to the full upright position. Do not let the blade come in contact with the ground or any object.

5. Maneuver the saw to the desired starting point.

6. If wet cutting connect the water supply to the saw.

7. Follow the instructions for starting the located in section ***B. Engine subsection 5. Starting the Engine*** of this manual (pages 15 to 16).

8. If wet cutting turn on the water supply at the source and then open the water valves on the saw. Make sure that there is a minimum of 5 to 8 gallons per minute of water flow!! If using the water pump turn the Pump Control Switch to the "On" position.

9. Be sure that the engine is running at full throttle!!! Check Engine Speed on the Tachometer to that listed on the Blade Speed Chart shown below. See ***Section B. Engine subsection 6. Engine Speed*** (page 16 to 17) for more details on changing the engine speed

Straight Drive 31 & 61 HP:

Blade Diameter	Engine RPM	Engine Pulley Diameter	Blade Shaft RPM	Blade Shaft Pulley Diameter	Blade Collar Diameter
14" (356mm)	2800	4.0 inch (102 mm)	2560	4.38 inch (111mm)	4.5 inch (114mm)
20" (508mm)	2700	4.0 inch (102 mm)	2469	4.38 inch (111mm)	4.5 inch (114mm)
26" (660mm)	2400	4.0 inch (102 mm)	2194	4.38 inch (111mm)	4.5 inch (114mm)
30" (762mm)	2600	4.0 inch (102 mm)	1340	7 inch (178mm)	6 inch (152mm)
36" (914mm)	2500	4.0 inch (102 mm)	1290	7 inch (178mm)	6 inch (152mm)

Jackshaft Drive 61HP:

Blade Diameter	Engine RPM	Engine Pulley Diameter	Blade Shaft RPM	Blade Shaft Pulley Diameter	Blade Collar Diameter
42 inch (1067mm)	2800	4.0 inch (102 mm)	890	6 inch (152mm)	8 inch (203mm)
48 inch (1219mm)	2500	4.0 inch (102 mm)	800	6 inch (152mm)	8 inch (203mm)

10. Slowly lower the blade by moving the Raise/Lower Switch forward. For more details on controlling the lowering speed see section **Hydraulic System** (page xx). Do not force the blade in to the cut!! Step Cutting provides the best performance (fastest cut and longest blade life) for additional information see section ***E. Cutting Techniques*** (page 22). Never saw deeper than 4" per pass as deeper passes will shorten the blade life and places higher stresses on the saw. Never twist, rotate, or bend the blade while in the cut. Do not attempt to cut in a circle or arc as the blade may be damaged.

11. Transmission Engage/Disengage lever by fully to the engage position and slowly push the Forward/Reverse Lever forward until the desired speed is reached. NOTE: The further the Forward/Reverse Lever is moved the faster the machine will move in that direction. If the engine begins to stall or the saw raises out of the cut slow the forward speed down!! The further the lever is pushed the fast the saw will move.

12. When the end of the cut is reached, raise the blade out of the cut by moving the Raise/Lower Switch to the rear of the machine until the blade is at least one (1) inch above the ground.

13. To use reverse, move the saw move the Speed Control lever to the rear of the saw. Only move the saw in reverse with the blade in the raise position. Always place the speed control back in the neutral position after moving the saw.

14. When moving the saw to a new location be sure that the blade is not touching the ground and always pay close attention to where you are moving and where the blade is at all times.

14. When the next cut is reached, align the saw with the cut and lower the blade into the concrete. Push the control lever forward until the lever aligns with the same location used to make the previous cut.

15. To disengage the transmission, place the Speed Control in the Neutral position and then slide the Transmission Engage/Disengage lever by fully to the “Disengage” position.

Caution: Do Not Engage Or Disengage The Transmission While The Machine Is In The Forward Or Reverse Positions!

CAUTION
DO NOT LIFT GUARD WHEN ENGINE IS RUNNING
FAILURE TO COMPLY COULD RESULT IN SERIOUS BODILY INJURY
S.M.I. MASONRY AND CONCRETE SAW MANUFACTURERS INSTITUTE
108850

F. Cutting Technique

The machine is equipped with Depth Gauge and a Depth Stop to help with the sawing process.

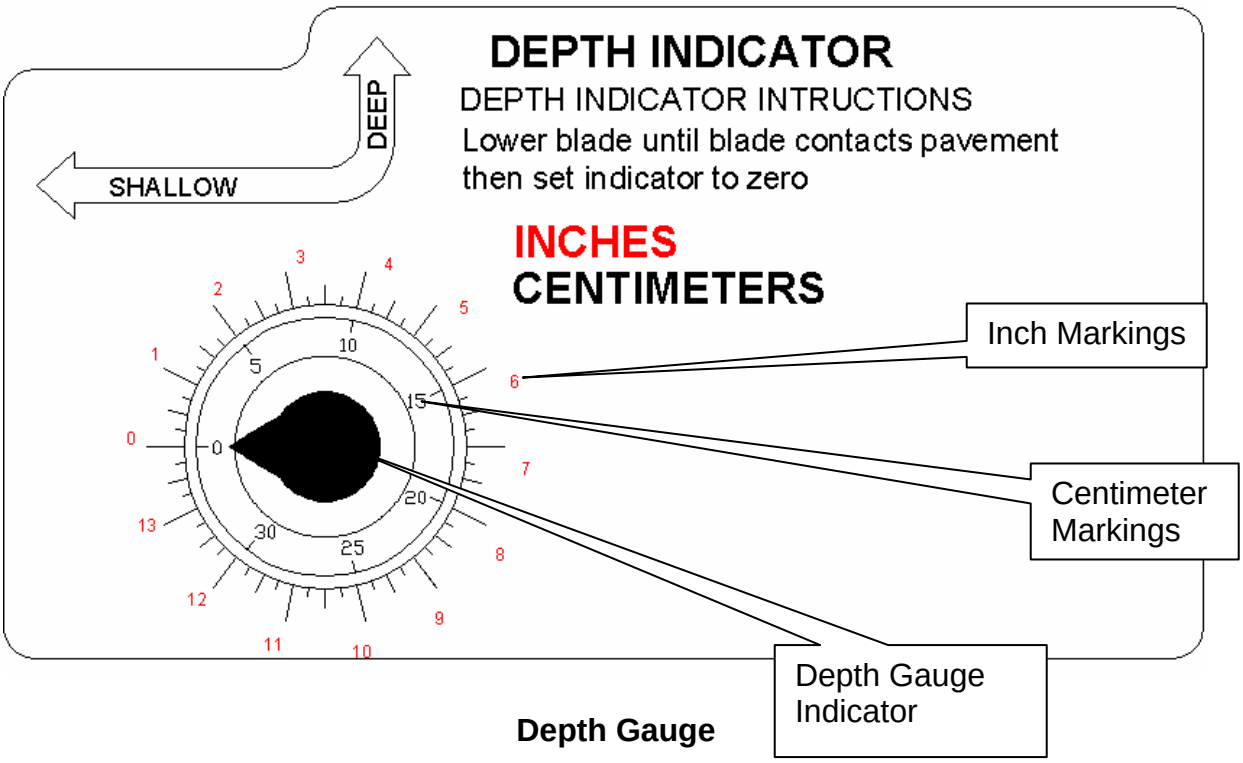
Depth Gauge

The Depth Gauge shows the depth of cut in inches and centimeters. Each time the blade is changed the Depth Gauge must be reset.

To set the Depth Gauge:

1. Do Not Start the Engine.
2. Insure that the Water Flow Control valve is off.
3. Slowly lower the machine with the Raise/Lower Switch by moving it towards the front of the machine until the blade touches the work surface.
4. Rotate the Depth Gauge Indicator to Zero (0)
5. Raise the Blade off the work surface by moving the Raise/Lower Switch towards the rear of the machine.

Now the Depth Gauge is reset and will read properly for the blade in stalled on the machine.



Depth Gauge

Depth Lock

The Depth Lock allows the operator to set the cutting depth. When the Depth Lock is used the machine will not lower below the operator preset depth of cut.

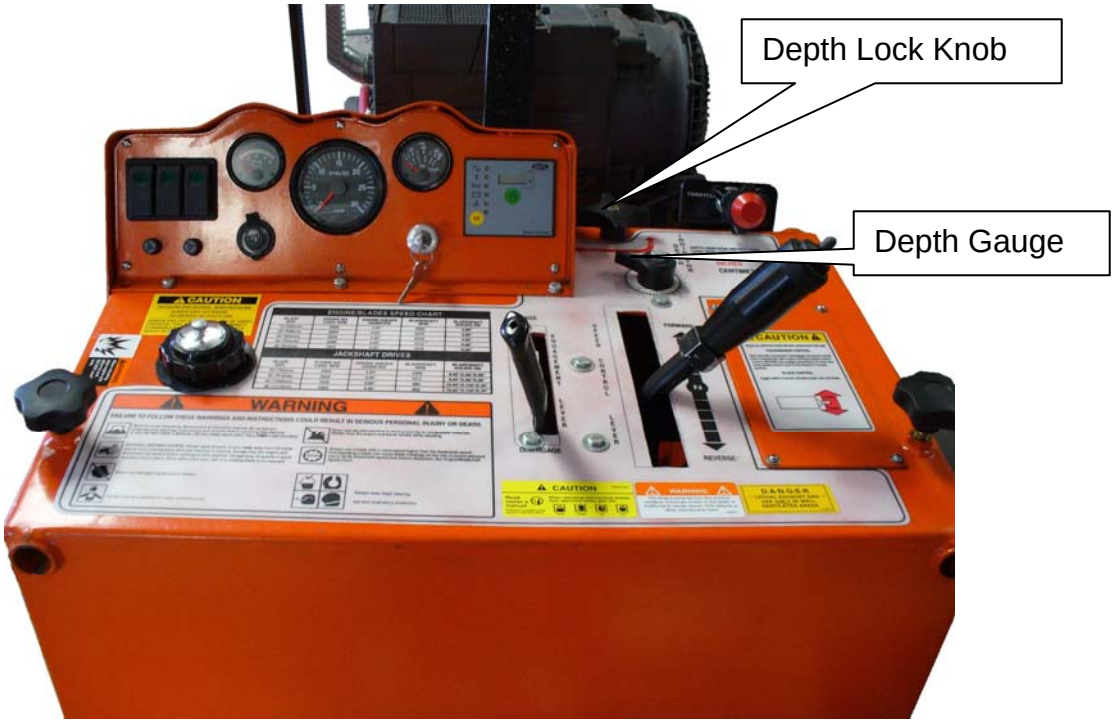
To set the Depth Lock:

1. Follow the instructions in sections ***D. Operating the Saw*** pages 9 to 21 and ***E. Cutting Technique subsection Depth Gauge*** page 22.

2. When the desired depth of cut is reached rotate the Depth Stop Knob clockwise unit it can not be rotated any more. The Depth Stop is now set. A cut will be at this preset depth until the Depth Stop is disengaged by rotating the Depth Stop Knob counter clockwise until it can not be rotated any more.

For example: If the Depth Stop is preset by the operator to 3" the machine will not lower more than 3" below the work surface until the Depth Stop is disengaged.

If the machine will not lower, the Depth Stop has been set. Rotate the Depth Stop Knob counter clockwise to disengage the Depth Stop.



Depth Gauge and Depth Lock Locations

Slowly lower the blade by moving the Raise/Lower Switch forward. For more details on controlling the lowering speed see section **Hydraulic System** (page

xx). Do not force the blade in to the cut!! Step Cutting provides the best performance (fastest cut and longest blade life). Never saw deeper than 4” per pass as deeper passes will shorten the blade life and places higher stresses on the saw. Never twist, rotate, or bend the blade while in the cut. Do not attempt to cut in a circle or arc as the blade may be damaged.

Step Cutting

1. Follow general instructions outlined in the section ***D. Operating the Saw*** pages 9 to 20.

2. When deep sawing (more than 4”) or concrete with hard aggregate, sawing to full depth in several cuts should be made in incremental steps of 1-1/2 to 2 inches until the desired depth of cut is reached. In softer aggregates or asphalt, it may be possible to saw full depth in two passes.

3. Gradually move the speed control lever forward to increase the cutting speed. If the blade stalls in the cut (which can happen when deep sawing) immediately raise blade from cut using the button on the top of the speed control lever. If not done at once, the belts will spin freely and burn. Check belts for proper tension and continue sawing at a slower rate of speed.

4. On final pass, lower the blade until it hits the sub-base (sandy color will appear in the water being discharged from the cut). Raise blade approximately 1/2" from bottom. The sand and gravel particles of the sub-base may cause premature wear or damage to the saw blade.

It is common, on the final pass of the cut, for pavement to wedge blade, particularly on a hot day. When this happens, immediately stop engine. If the blade is wedged, remove the Blade Shaft Bolt and Outside Collar and move the saw away from the blade. To remove a wedged blade from the concrete, use a jack hammer and carefully chip out concrete around the blade. (Pounding or twisting the blade may cause severe damage).

6. Go slowly with a new blade until it "opens up" that is, until you can see and feel the diamonds.

7. If saw leads off excessively, adjustment can be made on the left side of the rear axle (see section **F. Lead Off Adjustment** on page 26 of this manual). Small corrections can be made by leaning on handles.

8. Deep sawing is very hard on saws and blades. Experienced operators soon get a "feel" for the saw and are constantly on guard to slow down when they hit excessive steel or hard aggregate.

⚠ WARNING

Never operate saw with nose guard up.

Never stand directly in front or in back of blade, either in or out of the cut.

Never operate the saw without the blade guard and blade guard retaining pin in proper position.

Use the Pointers as a guide.

Never exert side press or twist the blade in the cut. Damage to the blade will occur.

If the saw begins to stall, retard the forward movement until full rpm is restored to the blade. If the saw stalls, raise the blade out of the cut before restarting.

Additional Guide Lines for Sawing:

- Understand and follow all of the instruction in this owner's manual.
- If wet cutting, turn on the water supply so that there is a 5 to 8 gallons per minute of water flow!!
- In critically hard aggregate more than a single pass may be needed to cut the desired depth.
- Only move the Engage/Disengage Lever while the transmission speed control is in the neutral position.
- Move the transmission speed control slowly.

- If the saw stalls in the cut, immediately stop the forward speed and raise the blade out of the cut. If this is not done the belts can fail or the blade may be damaged.

- Go slowly with a new blade until it opens up, that is, until the diamonds can be seen and felt.

- If the saw leads off excessively small steering corrections may be made by applying slight pressure to the right or left side of the handle bar. The drive rollers will need to be cleaned from time to time. From time to time the Lead Off Adjustment may need alteration fine-tuning see section ***F. Lead Off Adjustment*** on page 26 to 27.

F. Lead Off Adjustment

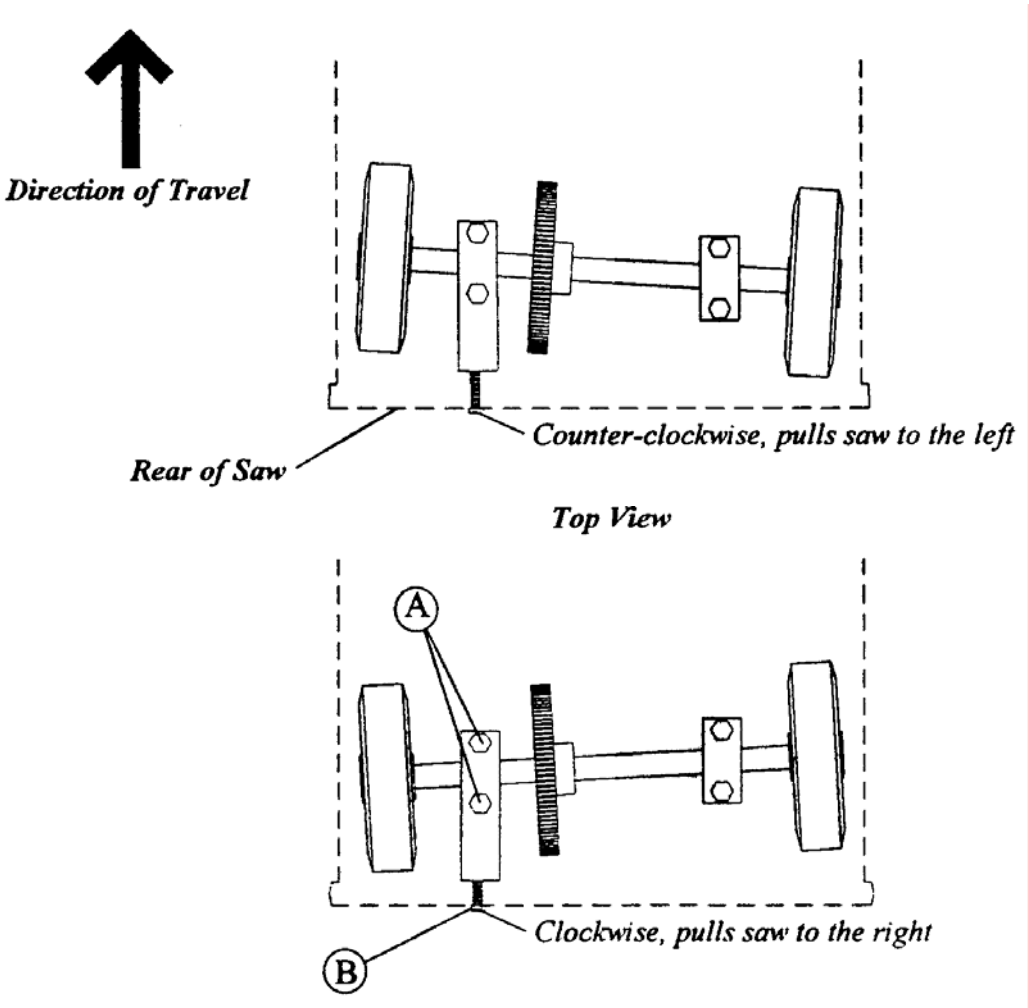
1. Lead off is the term used to refer to procedure used to account for the off sawing which occurs when cutting with diamond or abrasive blades. The correction procedure involves the alignment of either the front or rear axle so that the natural paths of the machine follows straight line while the blade is in the cut. Several factors affect lead off adjustment on concrete saws. Some of the most common factors are: surface texture, segment width, concrete (cured vs. green), steel center thickness, aggregate hardness, blade style, shaft RPM, cutting rate. The machines are preset from the factory with a Lead Off at 1 foot (305mm) in 25 feet (762cm) to the operators Left.

2. To adjust the lead off on the Model C61xx concrete saw a bolt with a 1/2" Hex Head Bolt located on the lower left corner of the rear cowl has been provided. Turning the bolt to the right moves the left rear bearing backward causing the machine to veer to the right. Turning the Lead Off Adjustment Bolt to the left results in the saw veering to the left side. (Note all directional references are made from the operator's position).

3. Should a situation occur where turning the lead off bolt results in no adjustment, the following procedure is required.

   a) Place the left rear bearing in the middle of the adjustment range.
   b) Loosen the right bearing and align the rear axle so that it rests parallel to the back of the saw. (Note it is not necessary to remove the hardware; simply loosen the bolts on the right rear bearing and tap the bearing forward or backward until the rear axle is parallel.)
   c) With the axle parallel re tighten the bolts on the right rear bearing and use the lead off bolt to adjust the tracking as before.
4. The lead off on the Model C61xx concrete saw has been set at the factory. The guards on these machines can be readily used on the Operator's Right

hand side. If the blade is to be used on the Operator's Left hand side the lead off will need to be reset. A good starting point is to set the lead off to 1 foot (305mm) movement to the opposite side of the blade in 25 feet (762cm) of forward movement of the saw.



Warning: Adjustments to the lead off should be made in very small increments. Radical adjustments and/or attempting to steer with the lead off bolt will destroy blades and bearings, voiding blade and equipment warranties.

III. Maintenance

A: Engine

Always refer to the Deutz Engine Operation Manual for complete detailed instructions and latest information. If you do not have your original Deutz Engine Operation Manual, contact the Deutz Corporation for a replacement.

DEUTZ Corporation
3883 Steve Reynolds Blvd
Norcross, GA 30093
Central Office Number (770) 564-7100
Web Site: http://www.deutzamericas.com

The Saint-Gobain Abrasives, Inc. does not warranty the engine. If any warranty or service of the engine is required contact your nearest Deutz service center @ (770) 564-7100, or from the Internet: http://www.deutzamericas.com

Before performing any service or maintenance to the engine or machine:

1. Always wear approved:

Eye Protection

Hearing Protection

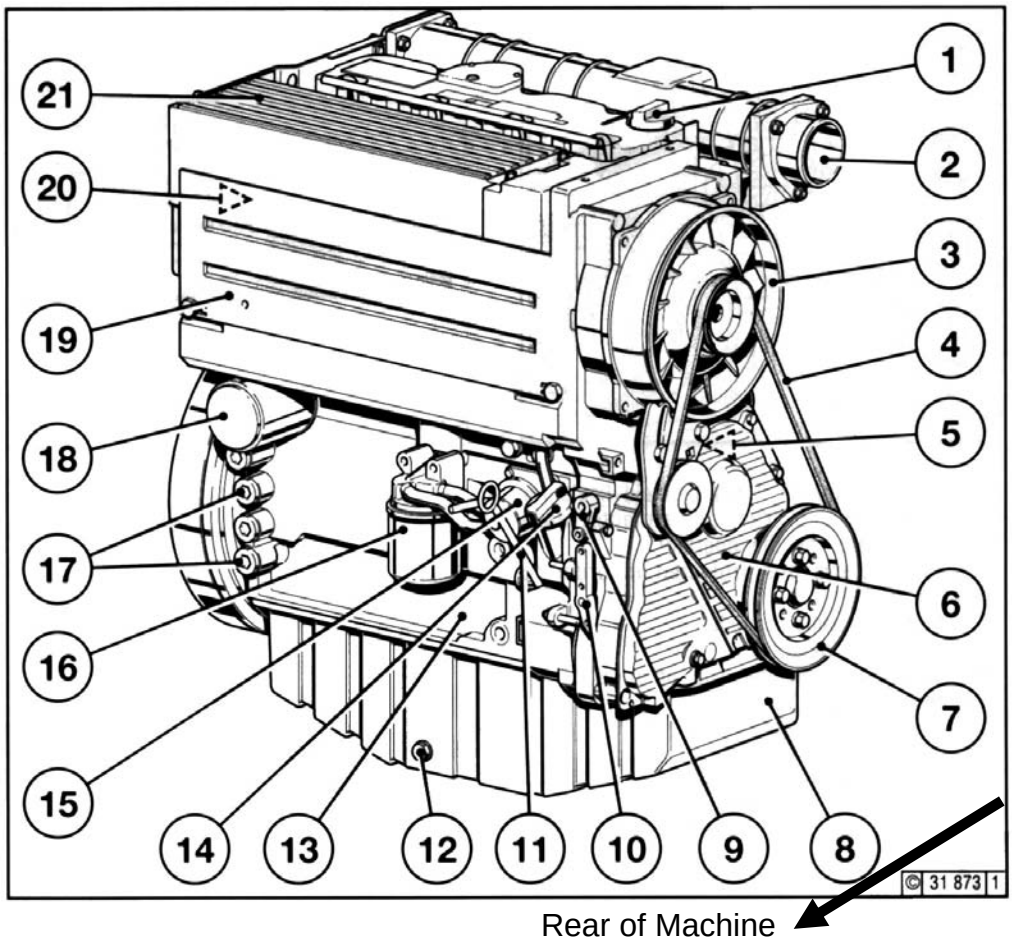
Respiratory Protection

Head Protection

NOTE: ‡ =The following information is from the Deutz Operation Manual for the 2011 series Diesel Engines.

2. Position the machine on a flat surface and chock the wheels so that the machine will not roll or move.
3. Turn the Ignition Power Key Switch to the off position.
4. Disconnect the Positive (red) Battery Cable from the Battery:
5. Familiarize your self with the locations and functions of all components of the machine and engine.

Locations of Engine Components:

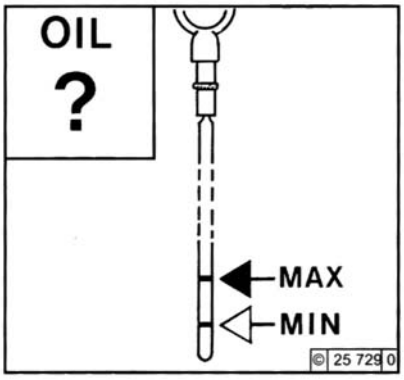


Deutz Engine Components ‡

1. Oil Filler Neck
2. Charge-air Line
3. Fan w/integrated generator
4. Narrow V-belt
5. Tractive electromagnet
6. Wheel-house cover
7. V-belt pulley on crankshaft
8. Oil Pan
9. Shut-off Lever
10. Speed Control Lever
11. Oil Dip Stick
12. Oil Drain Plug
13. Crankcase
14. Oil Fill Point (on side of Crankcase)
15. Fuel Pump
16. Fuel Filter
17. Connection for optional Deutz Oil Heater
18. Oil Filter
19. Cover
20. Fuel Injection Pumps
21. Oil Cooler

Oil:

Checking the Oil ‡:



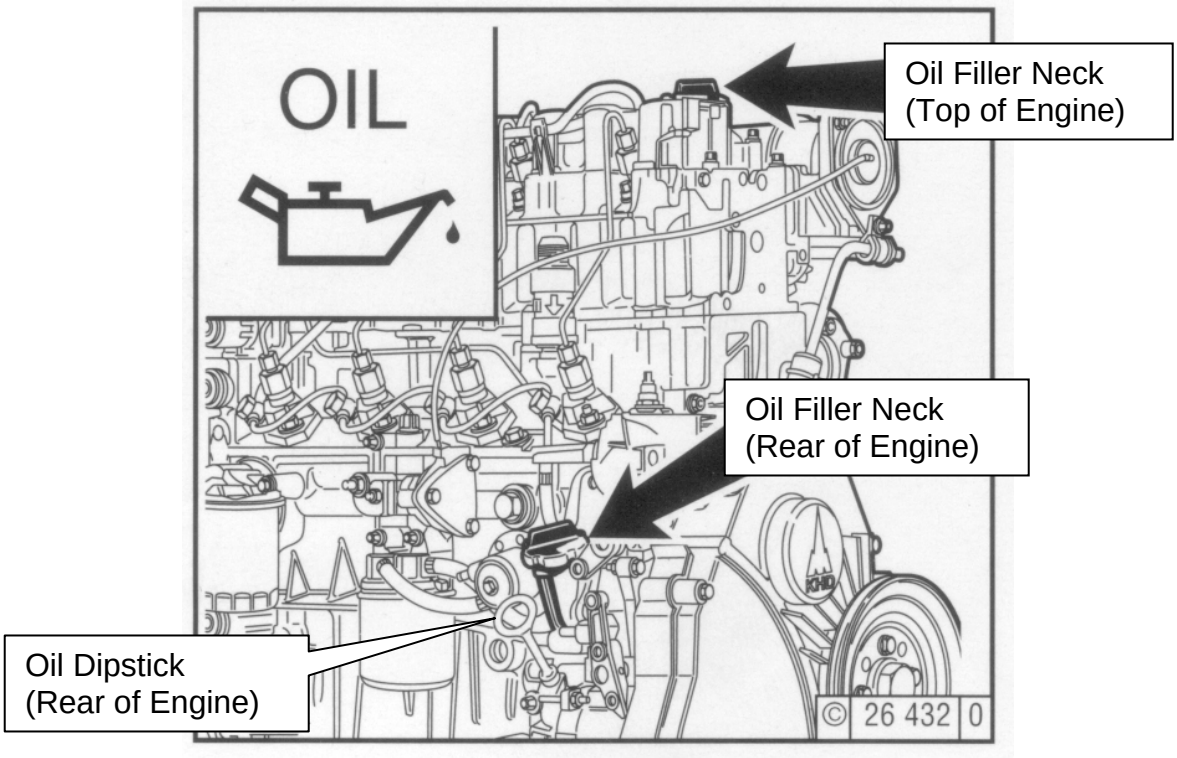
1. Fill oil into oil pan up to the “Max” mark on the Engine Dipstick. The Engine Dipstick is located on the rear of the Engine, between the Engine and the Console. Use either of the two (2) Oil Filler Necks one is located on top of the engine, the other is located on the rear of the Engine to add oil. If the oil level is only just above the “Min” mark, more oil must be added. See the figure below: **Oil Filler Neck and Dipstick locations**.

2. Start the engine and run at an idle speed for at least 2 minutes. For information on how to start the engine see section ***B. Engine subsection 5. Starting the Engine*** of this manual (pages 14 to 15).

3. Turn the Engine off

4. Turn the engine off.

5. Check the oil level using the Engine Dipstick



Oil Filler Neck and Dipstick Locations ‡

Oil Specifications:

Oil Type (Shipped from factory):	SAE 20W20
Oil Change Quantity with Filter:	8.45 qt (8 liters)

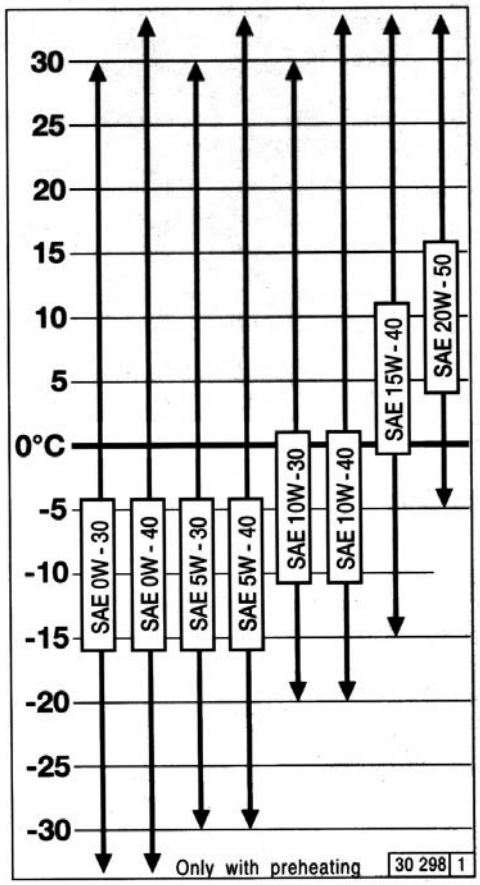
Oil Quality Grade:

Lube Oils are differentiated by Deutz according to their performance and quality class. Oils of other comparable specifications can be used. If you have any questions please contact your local Deutz service center.

Approved Oils:			
Deutz	DQC I	DQC II	DQC III
ACEA	CF/CF-4	CG-4/CH-4	-NA-
API	CF/CF-4	CG-4/CH-4	-NA-
DHD	-NA-	DHD-1	-NA-

See the Deutz Operation Manual or contact your local Deutz Service Center for more information.

Oil Viscosity:



In general multi-viscosity oils should be used. The viscosity of oil to be used is dependent on the ambient temperature of the environment that the engine will be operating in. Use the table to the left to determine the SAE grade based on ambient environment temperatures. If the ambient temperature is lower than the limits of the SAE grade selected the cold starting performance of the engine will be affected. Do not exceed the temperature application limits for the SAE grade selected for extended periods of time. For more information see the Deutz Operation Manual or contact your local Deutz Service Center.

Oil Change intervals ‡:

Deutz Lube Oil Quality Class		Lube Oil Grade DQC I		DQC II		DQC III	
ACE Specification		E2-96		E3-96/E5-02		E4-99	
API Specification		CF/CF-4		CG-4/CH-4		-NA-	
World Wide Specification		-NA-		DHD-1		-NA-	
Standard Lube Oil code for building equipment and non-road vehicles		EO EO A EO B		EO C		-NA-	
		Lube Oil Change Intervals in Operating Hours					
Engine Series	Engine Version	Oil Use		Oil Use		Oil Use	
Engine	Type	Normal	High	Normal	High	Normal	High
F3L2011	Turbo	250	125	500	250	500	250

See the Deutz Operation Manual for more information.

Always refer to the engine manual for more detailed information on checking the oil, changing oil, and oil capacity, and fuel type to use. Use only Deutz Oil Filters.

Fuel Specifications:

Fuel: Use only commercial grade Diesel fuel rated for on highway use with less than 0.5% sulfur content. If the sulfur content is greater than 0.5% the oil change interval will fall in the high use category in the table under Oil Change Intervals. If the sulfur content is greater than 1% contact a Deutz Service Center before using. The following fuel specifications are approved by Deutz

Diesel:

DIN EN 590
BS 2569: A1 and A2 (with A2 please note the sulfur content)
ASTM D 975-88; 1-D and 2-D
NATO Code F-54 and F-75
ISO 8217 DMX
ISO 8217 DMA

Bio Diesel Fuel:

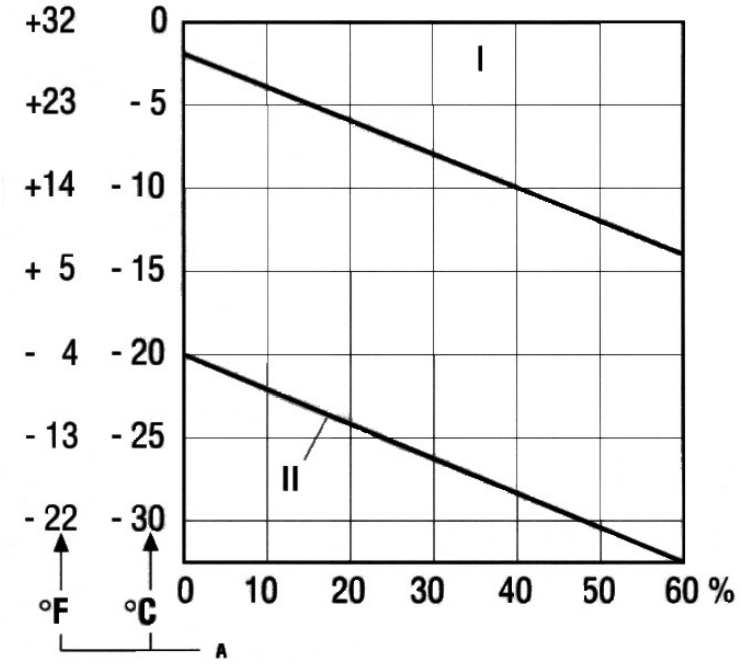
According to the DIN 51606 Frame

Exhaust emission values may change dependent on the fuel type. Please check with local authorities for the type approval test.

For more information see the Deutz Operation Manual or contact your local Deutz Service Center.

Winter Fuel Grades:

Waxing may occur at lower temperatures which will clog the fuel system and reduce the engines efficiency. If the ambient temperature is less than 32°F (0°C) a winter grade fuel (suitable to 5°F (-15°C) should be used. If the temperature is below 5°F to -4°F (-15°C to -20°C) kerosene should be added to the fuel as shown in the following chart. If summer grade Diesel must be used at temperatures below 32°F (0°C) up to 60% kerosene can be used. Always fill tank of saw with appropriate amount of Kerosene first then add the Diesel. For more information see the Deutz Operation Manual or contact your local Deutz Service Center.



Legend	
I	Summer-grade Diesel Fuel
II	Winter-grade Diesel Fuel
A	Ambient Temperature
B	Percentage of Kerosene Added

Never mix Diesel with gasoline (petrol)

Engine Service:

For Engine Service and Maintenance schedule and Service and Maintenance information see the Deutz Operation Manual or contact your local Deutz Service Center for service information.

The following Trouble shoot chart is taken from the Deutz Operation Manual.

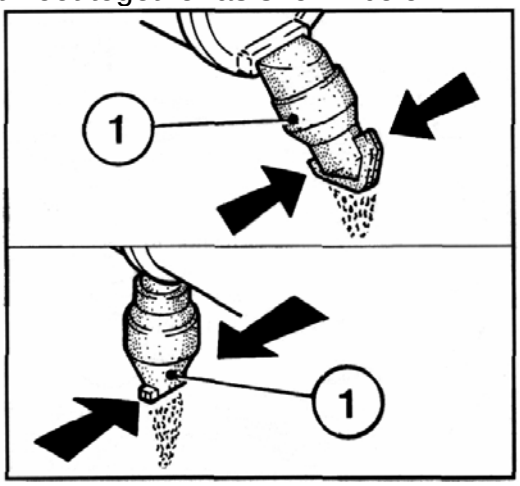
Fault											**Measures**	
Hard Starting											Check	**Ch**
	Engine Starts, but runs irregularly or fails										Adjust	**A**
		Engine becomes excessively hot. Temperature warning light									Replace	**Rp**
			Engine Out Put is deficient								Clean	**Cl**
				Engine does not run on all cylinders							Top Up	**T**
					Low Oil Pressure						Reduce	**Rd**
						Engine uses oil						
							Blue Smoke					
								White Smoke				
									Black Smoke			
										Cause	**Section**	
✓										Not declutched (where possible)	Engine Operation	**Ch**
✓								✓		Below Starting limit temperature		**Ch**
		✓			✓					Oil level too low		**T**
		✓	✓			✓	✓			Oil level too high		**Ch**
					✓	✓	✓			Excessive inclination of engine		**Rd**
✓					✓					Incorrect oil SAE class or quality	Operating Media	**Rp**
✓	✓		✓					✓		Fuel quality		**Rp**
		✓	✓						✓	Air Cleaner clogged/Turbo defective	Combustion Air	**Ch/Rp**
		✓	✓						✓	Air Cleaner service indicator defective		**Ch/Rp**
									✓	CPD* defective		**Ch**
		✓							✓	Air intake line leaking		**Ch**
		✓								Oil cooler panels clogged		**Ch/Cl**
		✓								Cooling fan defective split or loose cooling fan V-belt	Cooling system	**Ch/Rp**
		✓								Cooling air temperature rise/heating short circuit		**Ch**
		✓								Resistance in cooling system too great/through-flow quantity too small		**Ch**
✓										Battery defective or discharged	Electrical	**Ch/T**
✓										Electric cable connections to starter system loose or oxidized		**Ch**
✓										Starter defective or pinion does not engage		**Ch**
✓	✓		✓					✓	✓	Incorrect valve clearance	Engine	**A**
	✓		✓	✓						Injection line leaks		**Ch**
✓	✓	✓	✓	✓				✓	✓	Injection valve defective		**Ch/Rp**

B. Air Filter Assembly:

Please note that the Air Filter Assembly for the 31HP and 61HP Engines are different and do not interchange. The C31xx units are equipped with a 31HP Deutz Diesel engine see section **Air Filter C31xx** on page 37 for details. The C61xx units are equipped with a 61HP Deutz Turbo Charged Diesel engine see section **Air Filter C61xx** on page 38 for details.

Air Filter Assembly Maintenance:

1. Inspect and clean Inner and Outer Filters
    a. Inspect the Inner and Outer Filters for damage to the Filter and Gasket. If damage DO NOT USE replace immediately. Using an engine with a damaged filter can destroy the engine and is not covered under warranty.
    b. Clean the Inner and Outer Filters at least once a month if cutting dry. If cutting dry inspect on a weekly. Clean the Filters by using dry compressed air maximum of 73 psi (5 bar) of pressure, blow from the inside out. DO NOT wash the filters as this will damage the units. Replace the filters when the damaged. Do not clean the air filter with gasoline or other flammable solvents. A fire or explosion could result.
2. Inspect Gaskets located on the Filters for damage. The Gaskets can be damaged through regular removal and replacement. Replace if damaged. Do not use if damaged.
3. Insure that the Filters are properly installed in the Filter Housing before use. Never use the machine with out both Filters installed. If the engine can be damaged if dust or dirt is ingested and is not covered under any warranties.
4. Empty Dust Boot (Dust Discharge Valve) on a daily bases. The Dust Boot is located on the bottom of the Air Filter Assembly. To empty press the sides of the Dust Boot together as shown below:



Dust Boot

5. Inspect and Clean Pre-Filter weekly.

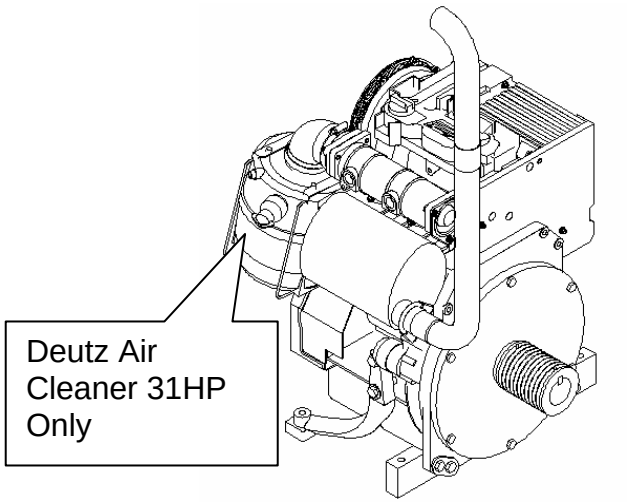
6. Inspect all Hoses for damage. Replace if damaged. DO NOT use the machine until any damaged hoses are replaced. Inspect weekly.
7. Inspect all Fittings and Clamps. Insure all Fittings and Clamps are properly tightened. Inspect weekly.

Dry Cutting Engine Maintenance

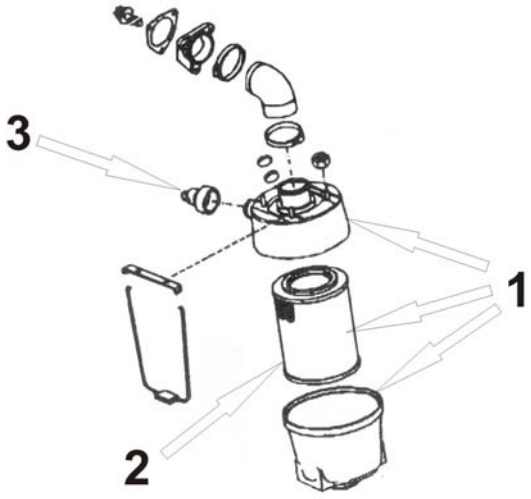
- ✓ When operating the engine in dry cutting or dusty environments the following is required:
- ✓ Engine oil changed more often.
- ✓ Every 50 hours (or more often if conditions require) clean all of the engine cooling fins.
- ✓ Every 25 hours (or more often if conditions require) clean the engine pre-cleaner.
- ✓ Every 100 hours (or more often if conditions require) replace the air filter. If the engine is equipped with a reusable air cleaner, clean and re-oil it.
- ✓ Check and clean the air filter after each use. Replace as needed.

Air Filter C31xx:

The C31xx Classic series Diesel Concrete saw is equipped with a Deutz Dry Type Air Cleaner.



Location of 31HP Air Filter

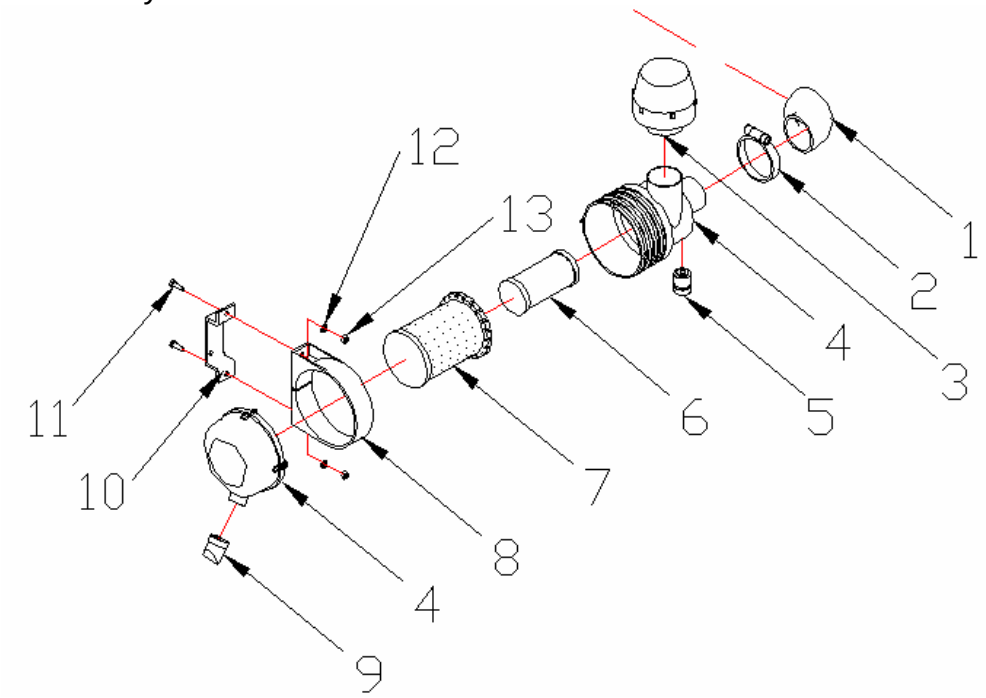


31HP Air Filter Components

ITEM	DESCRIPTION	PART No.
1	AIR FILTER ASSEMBLY TOP 31HP (Includes: Dust Boot, Filter Element, Housing Top, Housing Bottom, and Clamp)	237281
2	AIR FILTER ELEMENT 31HP	237282
3	DUST BOOT	237283

Air Filter C61xx:

The C61xx Classic series Diesel Concrete saw is equipped with three (3) stages of air filtration: the first is a Sy-Klone pre-filter; the next two is a Donaldson Air Cleaner with a Primary (Outer) and secondary (Inner) air filters. In addition the system is equipped with a Filter Service Indicator which shows when the air system has a restriction.



Air Cleaner Assembly C61xx Only

ITEM	DESCRIPTION	PART No.	ITEM	DESCRIPTION	PART No.
-NA-	AIR CLEANER ASSY Includes (3, 4, 5, 6, 7, 8, and 9)	X-10134	7	AIR FILTER OUTTER PIRMARY (Donaldson Part# P827653)	237277
1	ELBOW 90° 3" x 3" 90°	237402	8	BRACKET MOUNTING AIR CLEANER (Donaldson Part# P777731)	237278
2	BAND CLAMP 1-7/8TO5 SAE72	235139	9	DUST BOOT (VACUALTOR VALVE) (Donaldson Part# P158914)	237279
3	PRE-CLEANER SYKLONE 9000R (Sy-Klone Part# 9000R)	237273	10	BRACKET AIR CLEANER ASSY TO ENGINE	237394
4	AIR CLEANER BODY ONLY (Donaldson Part# G070019)	237274	11	SCR 5/16-18 X 1-1/4 HEX HD CAP	8041029
5	SERVICE INDUCATOR (Donaldson Part# X002152)	237275	12	WASHER 5/16 SAE	8160002
6	AIR FILTER INNER SAFETY (Donaldson Part# P829332)	237276	13	NUT 5/16-18 NYLOCK	8172008

C. Bearings

All of the bearings on Norton Saws are equipped with a hydraulic grease fitting (known as a grease zerk) for the easy of re-lubrication. The proper amount of lubrication in the bearing is extremely important. Both excessive and inadequate lubrication may cause a bearing failure. The bearings should be greased while they are rotating (if it is safe to do so), the grease should be pumped into the zerk slowly until a slight bead forms around the seats. (**NOTE:** The bearings are pre-lubricated at the factory and will not need re-lubricated until one of the time-conditional variables in the chart under the section **Frequency of Lubrication** is meet). This bead in addition to acting as an indicator of adequate grease levels and it provides additional protection against the entry of foreign matter in to the bearing and helps to flush out contaminates in the bearing. By the time the slight grease bead is formed the bearing's internal temperature will rise as much as 30° F.
Use only Lithium soap grease which is compatible with multi-purpose grease which conforms to NLGI Grade 2 consistency. The temperature range of the factory grease is -30° F to +250° F (-34.4° C to 121° C)

Bearing Location	Shaft Size	Maximum Grease in Ounces
Transmission Jackshaft	3/4"	0.03 oz
Front Axle, Rear Axle	1-1/4"	0.15 oz
Blade Shaft	2"	0.30 oz

Frequency of Lubrication

The frequency of lubrication depends on the operating conditions of the bearing. The bearing operating temperature is the best index for determining a lubrication interval. Use the following chart to determine the best re-lubrication (greasing) interval for your machine based on bearing operating temperature and operating conditions.

Speed (RPM)	Temperature	Condition	Greasing Interval
500 RPM	Up to 125° F (52° C)	Clean	2 months
1,000 RPM	Up to 150° F (66° C)	Clean	2 weeks
1,500 RPM	Up to 210° F (99° C)	Clean	Weekly
Any Speed	Up to 150° (66° C)F	Dirty	1 Week to 1 Month
Any Speed	Over 160° F (70° C)	Dirty	Daily to 1 Week
Any Speed	Any Temperature	Very Dirty	Daily to 1 Week
Any Speed	Any Temperature	Extreme Conditions	Daily to 1 Week

Too much grease will damage the bearing seals and will cause the bearing to fail. Large amounts of grease on the bearing seal is a sign of too much grease and possible seal failure.

D. "V" Belts

Warning: Never make adjustments to belts or pulleys while engine is running!

1. The best tension for a belt drive is the lowest tension at which the belts will not slip under full load.

2. Simply take up the drive until the belts are snug in the grooves. Run the drive for about 15 minutes to "seat" the belts. Then impose the peak load. If the belts slips tighten them until they no longer slip at peak load.

3. **Remember too much tension shortens belt and bearing life!**

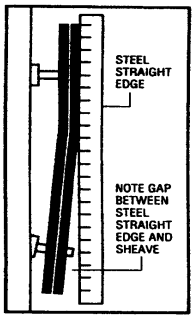


FIGURE 1

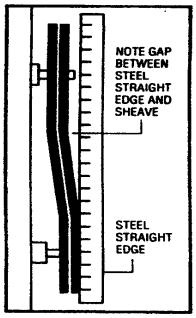


FIGURE 2

4. Check the belt tension frequently during the first day of operation. Check the belt tension periodically thereafter and make any necessary adjustments.

5. The two most common causes of misalignment are shown in the drawing.

   A. The engine drive shaft and the blade shaft are not parallel. **See Figure 1**

   B. The pulleys are not located properly on the shafts. **See Figure 2** above

6. Use a Straight Edge to check alignment.

7. Line up the straight edge along the outside face of both pulleys as shown in **Figure 1**.

8. Misalignment will show up as a gap between the pulley face and the straight edge.

9. Make sure that the width of the outside land is equal on both pulleys.

E. Hydraulic Raise/Lower System

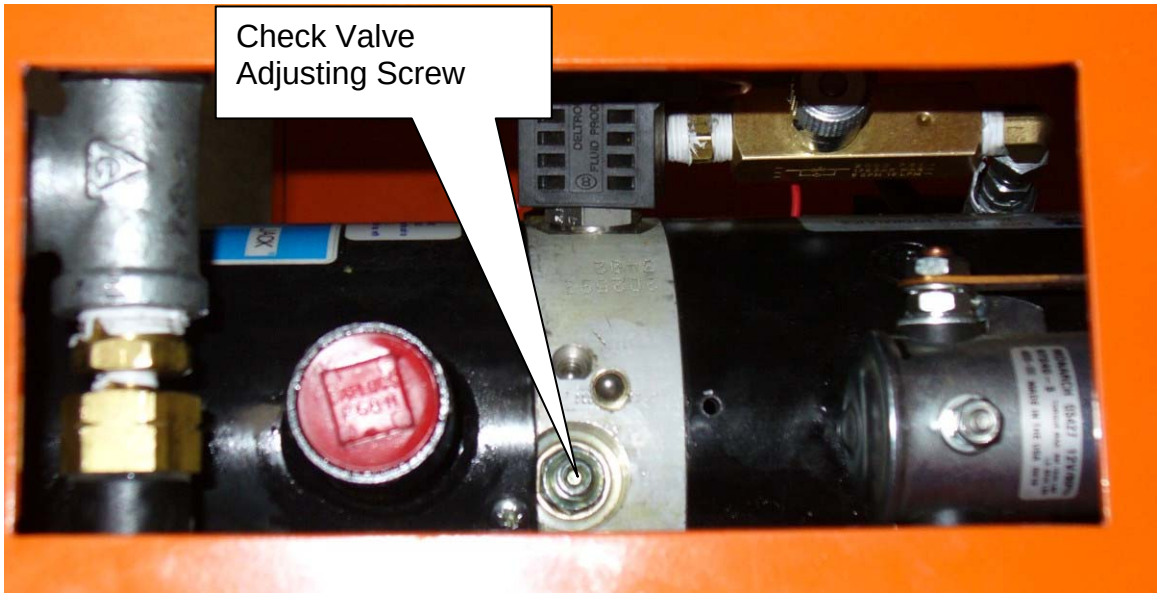
Raise and Lower Speeds of the Hydraulic System:

The Hydraulic System is set up at the factory to Raise from a fully lowered position to the fully raised position in less than 5 seconds. The machine is also set up to lower from a completely raised position to fully lowered 10 to 12 seconds.

The raising speed can be adjusted as follows:

1. Remove the Hydraulic Pump Cover from the console.

2. Locate the Check Valve Adjusting Screw as shown below:



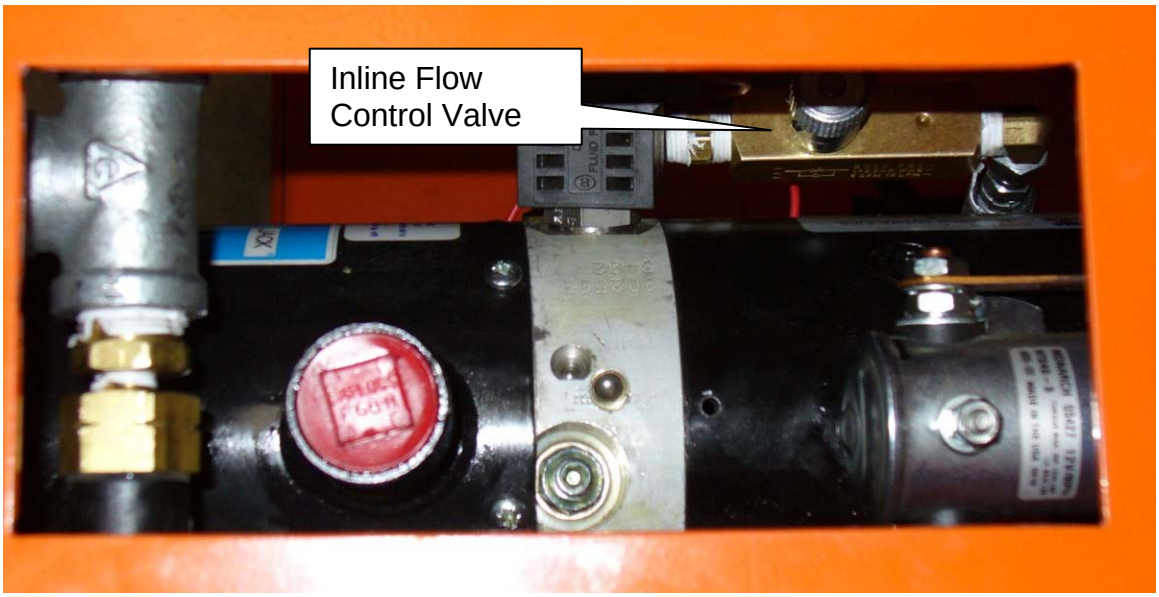
3. Turn the Check Valve Adjusting Screw clockwise to increase the raise speed and counterclockwise to decrease the raise speed.

4. Replace the Hydraulic Pump Cover.

The lowering speed can be adjusted as follows: **NOTES:** If the machine will not lower check to see if the Depth Lock has been activated. For additional information on the Depth Lock ***see the section Depth Lock on page 22***.

1. Remove the Hydraulic Pump Cover from the console.

2. Located the Inline Flow Control Valve as shown in the picture below. **NOTE:** The Inline Flow Control Valve only affects the lowering speed not the raise speed.



3. Adjust the Inline Flow Control Valve in small increments unit the desired lowering speed is meet.

4. Replace the Hydraulic Pump Cover.

Hydraulic Pump Maintenance:

1. Hydraulic Pump Maintenance and Trouble Shooting
   Part Number: 149001: Manufacturer Monarch Model M-319-0110

   All Monarch pumps are of the external gear type. They are not complex in construction and if property maintained give years of trouble free service.

2. Fill reservoir to with the approved fluid as specified on the label next to the fill hole. Fill reservoir to within a 1/2" from the top with all cylinders in the fully extending position. Use ATF Dextron B (Automatic Transmission Fluid).

4. Operate the unit several times starting with short cylinder strokes and increasing length with each successive stroke. Recheck the oil level often and as necessary to keep pump from picking up air.

6. After system is completely "Bled," extend the cylinder, check the oil level in the reservoir, and install the filter breather plug provided.

WARNING: Do not use a solid plug or a fill cap without a filter/breather element or damage will be caused to the pump and/or reservoir.

7. For warranty and service information on Monarch Hydraulic pumps, contact Monarch Hydraulics at:
   Phone: 616-458-1306
   Web Site: http://www.monarchhyd.com/

   The Norton Company does not warranty the Hydraulic Pump. If any warranty or service of the Hydraulic Pump is required contact your nearest Monarch Hydraulics service center @ (616) 458-1306, or from the Internet: http://www.monarchhyd.com/

8. Monarch Hydraulic Pump Symptom /Cause

Symptom	Cause
Motor Fails To Start	Motor Start Solenoid Switch Electrical Switch "Open" Circuit Motor
Load Fails To Hold	Check Valve-Main (Poppet Type) D.R. Lowering Valve (two-way, Two Position) Manual Override
Load Drops Slow	D.R. Lowering Valve (two-way, Two Position) System Filter
Motor Runs But Load Fails To Raise	D.R. Lowering Valve (two-way, Two Position) Manual Override "Ground Fault' Relief Valve Suction Filter Pump Losing Prime (Low Or No Oil In Pump) Cylinder - Piston Type Worn Pump
Motor Runs Slow And Sluggish	Low Voltage Motor Relief Valve
Load Fails To Lower	D.R. Lowering Valve (two-way, Two Position) System Filter Electrical Switch "Open" Circuit

9. Monarch Hydraulic Pump Test Equipment
   a. Pressure Group:
      A small 0 5000 PSI pressure gauge, preferably glycerin filled, is a very valuable and relatively inexpensive tool for checking pressure in the various sections of the circuit.

   b. DC Test Light:
      A test light is simply a light bulb which has one end connected by a wire to an alligator clip and the other end connected to a metal probe. It is used to check the electrical circuit when the battery is connected to the system. The alligator clip is grounded and the light glows when

the probe comes in contact with "HOT" electrical component. They are easily obtained from automotive jobbers or discount stores.

c. Continuity Light:

Continuity Light is like a test light but contains its own battery power source. It is used for testing electrical circuits when the components are not connected to a battery. They are easily obtained from discount stores or electrical jobbers at modest cost.

d. Volt Meter:

A DC volt meter, as used in automotive repair business, is a good investment for trouble shooting problems that are related to low voltage. They are used in two ways:

1. One probe is grounded while the other is used to probe the "HOT" leads; the meter shows the voltage available at the point where the second probe is connected.

2. Second: They can be used to measure a voltage drop in a wire; in probe is connected to one end and the remaining to the other end; the reading is the voltage drop.

e. OHM Meter:

An OHM meter is used to measure resistance and is very useful tool when working on wire circuits and solenoid coils. On some coils the wire resistance is up to a level where a DC test light might show an open circuit and it really is not so. An infinite meter reading on any test light shows that the circuit is open. A coil test, however, will always show some value of resistance but it must not be infinite. All tests conducted with an OHM meter must be done with the battery disconnected from the system.

10. Hydraulic Fluid

a. The Purpose of Oil:

The main purpose of hydraulic fluid is to transfer power from the pump to the actuators but it must also perform many other tasks which are critical to a well designed system. First the oil must have good lubricity or be "slippery" so that the friction will be as low as possible to metal to metal wearing at a minimum. Second, the viscosity or "thickness" must be in the proper range at the operating temperature so that unwanted leakage will be at a minimum, but will still allow the oil to lubricate the close fitting parts in the system. (Oil that is too thin will leak past seals, valve spools and the gears; oil that is too thick will not flow properly and cause the pump to cavitate or starve.) Third, the oil must be compatible with the seals used in the system. Fourth, there should also be additives in the oil to slow down the effects of rust, oxidation (oxygen in the air combining with the oil

to form sludge), foaming and water settling to the bottom of the reservoir. Fifth, the oil must be able to pour or flow at the lowest expected temperature so that the oil can reach or get into the pump. For all of the reasons just listed, automatic transmission fluid (ATF Dextron B) was found in most cases to be the best readily available fluid for the job in most climate conditions.

b. Selecting Fluids for Applications Outside of a TFS Temperature Range

When looking for fluids that can be used in the place of automatic transmission fluid or for applications where the operating temperature is outside of the range of automatic transmission fluid, the following specifications should be discussed with your local oil distributor:

1. Fluid must be compatible with Buna N sealing compounds.

2. The Pour Point must be below the lowest anticipated temperature that will be encountered.

3. It should contain rust and Oxidation as well as other detergent type inhibitors.

4. The Viscosity (SUS) should lie between 80 as a minimum and 375 as a maximum in the operating range with the ideal viscosity near 200 SUS.

5. The viscosity index should be as high as possible.

As an example, automatic transmission fluid (ATF) has the following specifications as listed by most oil manufacturers.

A. Viscosity (SUS) 185 to 205 @ 100OF
Viscosity (SUS) 45 to 50 @ 210OF

B. Pour Point 450F to 350F.

C. Viscosity Index 145 to 165

Note: In an emergency for cold weather applications SAE 1OW non detergent oil mixed by volume with no more than 30% #1 fuel oil or kerosene can be used.

11. Hydraulic Pump Priming

A. New Installations:

New system installations, as well as those that are disassembled for repair, require proper priming to avoid possible pump failure. A pump is said to be "primed" when the internal cavity is full of oil and the air has been expelled. If needed, prime a pump as follows:

1. "Crack" or remove the high pressure line at or near the cylinder.
2. "Jog" the handle until oil flow is clear. (Air is absent.)
3. Retighten or replace hose.

B. On systems that fail to prime or lose their prime, check for the following:

1. Correct unit mounting position in the case of a pump motor combination. It is either horizontal or vertical and failure to mount in proper manner could mean pump cannot prime (pick up oil) because the suction tube is not submerged in the oil at all times. Note: All pumps designed for vertical mounting have a label stating such.
2. Partially clogged suction filter.
3. A loose or improperly installed suction hose or pick up tube.
4. A bad front pump seal.
5. A solid fill plug in reservoir with no vent.
6. Oil that is too thick (See Hydraulic Fluid Section), or commercial with water.
7. Occasionally a pump will not prime itself because a check valve spring in the high pressure port is too "stiff" or the spring retainer is turned down too far. If this condition is expected, loosen the spring retainer, (it is found in the 3/8 high pressure outlet port), energize the pump to prime it, and then turn the retainer back to the correct depth. (See Section on Check Valves.)

12. Hydraulic Pump Electrical Problems

Warning: Remove all rings, watches, etc. prior to doing any electrical work.

A. Low Voltage

Operating direct current (DC) power units efficiency requires proper voltage. Any attempt to operate below the minimum required voltage could cause system failure. Signals which point to low voltages are:

1. Motor running at reduced speed.

2. Solenoid valves not shifting.

B. Minimum voltage readings are as follows:

1. The minimum voltage between the motor stud and ground is 9.0 volts at maximum load conditions.

2. The minimum voltage between the valve solenoid power wire ("hot wire") and ground is 9.5 volts at maximum load conditions.

C. Cause for Low Voltage

1. Battery capacity too small.

2. Cable ends not electricity secure to battery cable. (Solder them if necessary.)

3. Battery cable size too small for load and length of run. Copper #1 automotive battery cable is the recommended minimum size. (The wire core diameter of #1 battery cable is approximately 1/8 inches.) Larger copper battery cable, #0, or #00 may be required for cable lengths over 16 feet to keep performance from deteriorating.

4. Ground cable size not equivalent or larger than battery cable.

5. Bad joints where cable ends are bolted to battery, motor solenoid, start switch, ground and etc.

6. Burnt contacts on motor solenoid or start switch.

D. Check for low voltage as follows: (Volt meter required.)

1. On engines equipped with an alternator the voltage should be approximately 13.5 volts with no electrical accessories operating and the engine running. Check it.

2. Operate pump unit under maximum conditions; this would be either under full load or when pump is running over relief (Cylinder dead head). Use the volt meter to probe each connection, cable end and cable from the battery all the way back to the motor stud and note the voltage losses. Make the necessary repairs. Increase the voltage above the minimum required.

   NOTE: Check the ground side as well; paint, rust and dirt are insulators. Remove them.

E. DC Motors

Motors should be serviced periodically to insure good performance. Service as follows:

1. Remove head assembly from motor.

2. Check sleeve bearing in head assembly for wear.

3. Place a few drops of oil on felt liner in head assembly.

4. Check brush set for wear and replace if necessary.

5. Blow dirt and dust out of motor housing and check for shorts, burnt wires, or open circuits in the field coil assembly.

6. Check armature and commentator for shorts or open circuits.

7. Check ball bearings on motor shaft, a growling motor can be caused by bad bearings.

8. Check for excessive "end play" of armature and add thrust washers as required.

9. If there is an excessive amount of water, condensation, or rust in the motor, a small drain hole may be drilled in the motor case on the low side of the motor depending on the mounting; consult with factory for additional information.

   NOTE: A motor that does not turn in freezing weather could be caused by water that has frozen inside the housing.

10. All Monarch DC motors turn counterclockwise when viewed from drive end; it checks it when replacing motor with new one.

11. If motor fails to turn the pump, check the pump by turning drive shaft by hand.

F. Electrical Switches

Defective switches are a common cause of electrical malfunction. What seems to be a serious system defect can often be caused simply by a faulty switch, especially where the switch controls two functions, that is, start the motor and shift a valve. In most cases one half of the switch might be defective while the other half operates correctly and the fault appears to be with some other component. Trouble shooting can be done by any one of the three methods:

1. Use”continuity light" to test switch. (See Test Equipment Section)

2. Use a circuit "test light" to test switch. (See Test Equipment Section)

3. Remove the wires from the switch and "touch" them together in the proper order to operate system.
   NOTE: All switch control stations subjected to the weather should be mounted so that the cord exits the bottom to prevent water from entering the box.

G. Motor Start Solenoid Switches

The three post solenoid switch is wired and constructed as follows:

1. The large post marked "Bat' must be attached to he cable leading from the battery.

2. The small post connects to the control circuit. (Contact finger, push button, toggle switch, etc.) The remaining large post attaches to cable leading from motor.

   NOTE: Do not attach motor cable to post marked "Bat" as solenoid will not operate properly.

4. Internally, the coil is constructed with one end connected to the post marked "Bat" and the other end to the small center post. With the battery cable connected to the post marked "Bat," the solenoid switch is energized by grounding the small post: which in turn closes the main contacts and starts the motor.

NOTE: When testing, use an OHM meter, continuity light or test light, and check all functions as described above. (See Test Equipment Section)

H. Shorts, "Ground Faults" and "Open" Circuits

In control wiring, shorts can only occur when "hot" lines (lines connected directly to the battery) come in contact with ground. A short will either cause a fuse to blow, if there is one, or bum the wire off at its weakest point. Likely spots for shorts are switches, electrical strain relief, electrical junction boxes and control cord that has been pinched or cut. Grounding faults are much like shorts except they occur on the opposite side of the electrical component. (Valve solenoid or motor solenoid start switch.) A "ground fault" will cause the coil in the motor solenoid switch or valve to remain energized. This type of failure can happen because switching is done in

the ground wire du e to the construction of the motor solenoid switch (See Electrical Switches). Likely spots for "faults" are the same as shorts see above.

J. Solenoid Coils

Coils are used in solenoid start switches. Failures can be caused by vibration, water, improper voltage or corrosion. The best way to test a coil is with an OHM meter. The meter should read some value of OHMS and an infinite reading means that the coil has an open circuit. The reading between any lead on the coil and the "can" should be infinite unless there is only one lead wire and the coil is grounded to the can.

K. Electrical Polarity

Motors and valves supplied by Monarch can be used on either positive or negative ground systems with the exception of the model M 310 or any system using the round (cylindrical shaped) manual valve with a covered switch on the back plate. In these units, there is a capacitor connected on the switch which must be "polarized." They are normally sent out for negative ground systems and if used on a positive ground system, the capacitor must be turned end for end as the + sign must face the most positive side of the circuit. Failure to align properly will cause the lead wire to "blow" off the capacitor, which in turn could make a "Ground Fault' and cause the motor to run with no control.

12. Diagnosing and Repairing Hydraulic Pump Relief Valves

NOTE: When testing or making adjustments on the relief valve, the system must be "dead headed"(cylinder at full stroke or in a position where cylinder movement is zero).

A. Relief valve pressure too high.

1. Symptoms:
   - Amp draw and battery drain excessive when system is "dead headed."
   - Motor RPM is slow in comparison to full load system operation.
2. Repair Procedure:

   Turn relief valve adjusting screw counterclockwise using a gauge, tee'd into the high pressure line to record the proper pressure setting.

   Note: On the "internal" relief valve the flush 1/4" pipe plug will have to be removed to reach the adjusting screw (see

label). On the "inline" style relief valve the return lines, threaded into the back, will have to be removed in order to reach the adjusting screw. The "internal" relief valve is adjusted with a screw driver and the "inline" relief is adjusted with a 1/4" alien key.

B. Relief Valve Pressure Too Low:

1. Symptoms:

- Motor RPM is faster than normal.
- Cylinder will not extend.
- Excessive turbulence in the reservoir.

NOTE: On applications where the cylinder is being replaced or the mechanical mechanism is being modified, make sure the pressure capability of the pump is not being exceeded.

13. Diagnosing and Repairing Hydraulic Pump Relief Valves:

A. Two possible causes for lack of pressure

- The adjusting screw has backed up.
- Foreign matter or "dirt' is trapped between the seat and the ball or cone.

B. Repair as follows:

- Using a gauge tee'd into the pressure line, turn the adjusting screw clockwise a turn or two and watch the gauge; if it goes up, continue to turn the screw until the required setting is reached. If the screw does not remain in the correct position, replace it with one that has a locking patch (In an emergency the screw threads can be deformed slightly with a small prick punch and hammer to hold the setting.)
- If the pressure does not climb when the adjusting screw is tightened; turn the adjusting screw counterclockwise all the way out: energize the pump to 'flush' the dirt past the seat:

CAUTION: use hand or a piece of hose to divert oil into a container. Do not look into the port.)

NOTE: In an emergency, if a pressure gauge is not available, turn the relief valve screw in until the cylinder moves under worst conditions and then tighten 1/2 to 3/4 additional turns.

C. If the above mentioned procedure fails to increase the relief valve setting, check for a worn pump or leaking cylinder

14. Troubleshooting and Repairing Hydraulic Pump Relief Valves

A. Load drift failure

1. Symptom:
   In most cases a check valve will fail such that the load will drift down when the unit is in the "hold" position.
   NOTE: Check cylinder for leakage past piston seals. A bad piston seal will give the same symptom.

2. Repair procedures
- Remove the spring retainer.
- Remove spring.
- Remove ball or poppet.
- Start pump to "flush" dirt from seat area. (Caution: Use hand or a piece of hose to
- divert oil into a container. DO not look into the port.)
- Inspect ball or poppet for damage and replace if necessary.
- Reinstall ball or poppet
- "Seat" the ball using a small drift punch and hammer with a light tap.
- Reinstall the spring.
- Replace the spring retainer to the correct depth.

B. Blocked Flow Valve

1. Symptom:
   Once in a while a ball type check valve will restrict flow to the point where the spring will collapse and the flow will be greatly reduced (even blocked) causing flow over relief.

2. Repair Procedure:
- Remove the check valve components and replace the spring.
- If the problem persists replace the ball type with a poppet type as they cannot completely block flow.

  NOTE: Do not use Teflon tape on hydraulic fittings as it can easily jam valves and plug the filters in the system.

F. Transmission

Eaton Model 6 Hydrostatic Transmissions:

1. Accurate fluid level readings can only be made when the fluid is cold.

2. If the natural color of the fluid has become black or milky, the transmission has over heated or water containment has occurred. Drain and replace the

fluid, check the fan and accessory belts, clean the cooling fins, and also check for any fluid leakage. Do not pressure wash the transmission!

3. Use only the proper viscosity and type of fluid. At normal operating temperatures, the optimum viscosity range is between 80-180 SUS (16-40 CS) and it should never fall below 60 SUS (10 CS).

4. The fluid should be chemically stable, incorporating rust and oxidation inhibitors.

Recommended Fluids For Eaton Model 6 Transmissions
1. Mobil Fluid 300
2. Texaco TL 2209
3. Dextron B (General Motors)
4. M2C-33F And M2B-41A (Ford Motor)
5. Hy-Tran (International Harvester)
6. 10W Straight Viscosity SE, CC, or CD Rated Engine Oil
***7. 20W Straight Viscosity SE, CC, or CD Rated Engine Oil**
8. 30W Straight Viscosity SE, CC, or CD Rated Engine Oil

* Factory Supplied Transmission Fluid

G. Self-Propelling Operations

The C61xx Series Concrete Saws are equipped with self-propelling system consisting of an Eaton Model 6 Hydrostatic Transmission which drives the Rear Axle of the machine through a large Gear located on the Rear Axle. The Transmission can be disengaged so that the machine can be moved with out running the engine; this function is known as freewheeling.

1. **Speed Control Lever:**
   The operator's right hand lever is the Forward/Reverse Lever. The Forward/Reverse Lever is used to control the speed and direction of the machine. The machine is equipped with a Neutral Lockout which prevents the Forward/Reverse Lever from accidentally being moved from the Neutral Position. The further the Forward/Reverse Lever is moved the faster the machine will move in that direction.

2. **Transmission Engage/Disengage Lever:**
   Transmission Engage/Disengage lever has two (2) positions onto which it can be moved: Engaged position (Up) allows the transmission to operate the rear drive wheels by the means of meshing a Small Pinion Gear with a Larger Gear attached to the Rear Axle. When the Transmission Engage/Disengage Lever is moved to the Disengage (Down) position the saw ca be "Free Wheeled" or moved without running the engine. **NOTE: When parking the saw, it should always be left in the Engaged position, Speed Control Lever in the neutral position, the engine OFF, and perpendicular (right angle) to the grade (hill).**

CAUTION: Only move the Engage the Engage/Disengage Lever when the Transmission Forward/Reverse Lever is in the Neutral Position. Engaging the Engage/Disengage Lever when the Transmission Forward/Reverse Lever is in any other position can damage the Rear Axle Drive Gears

Too Move the Machine:

When the Transmission Engage/Disengage Lever is engaged, pushing the Forward/Reverse Lever slowly forward will increase the forward speed of the saw. Pulling it to the center will place the saw in neutral. The machine is equipped with a Neutral Lockout. To operate the Forward/Reverse Lever either: move the lever towards the Operator's left side then move the Forward/Reverse Lever to the desired position. Pulling the saw to the rear of the console (from the neutral) will increase the reverse speed. The S

A. With the machine running, insure that the machine's Forward/Reverse Lever is in the Neutral position.
B. Place the Engage/Disengage Lever into the Engage position.

C. Move the Forward/Reverse Lever towards the Operator's left side and then move the Forward/Reverse Lever to the desired position. The machine is equipped with a Neutral Lockout which prevents the Forward/Reverse Lever from accidentally being moved from the Neutral Position. Pushing the Forward/Reverse Lever slowly forward will increase the forward speed of the saw moving the Forward/Reverse Lever towards the rear of the machine will increase the reward or reverse speed.

3. **Transmission Maintenance:**

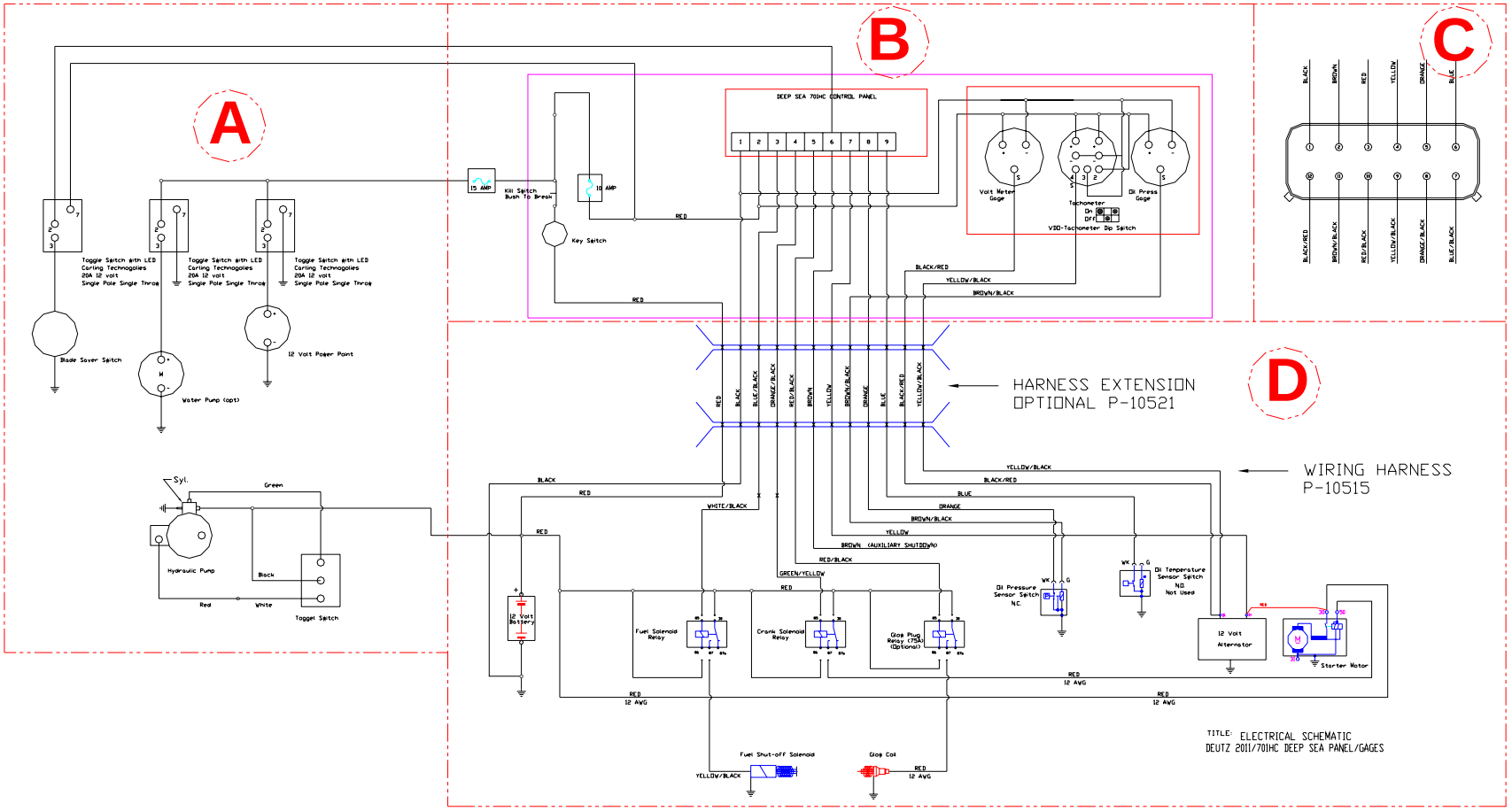
A. Keep the chain clean and properly adjusted.

B. Keep all linkages properly adjusted.

C. Keep Transmission Belt aligned and in good condition. Replace the belt if it worn or cracked.

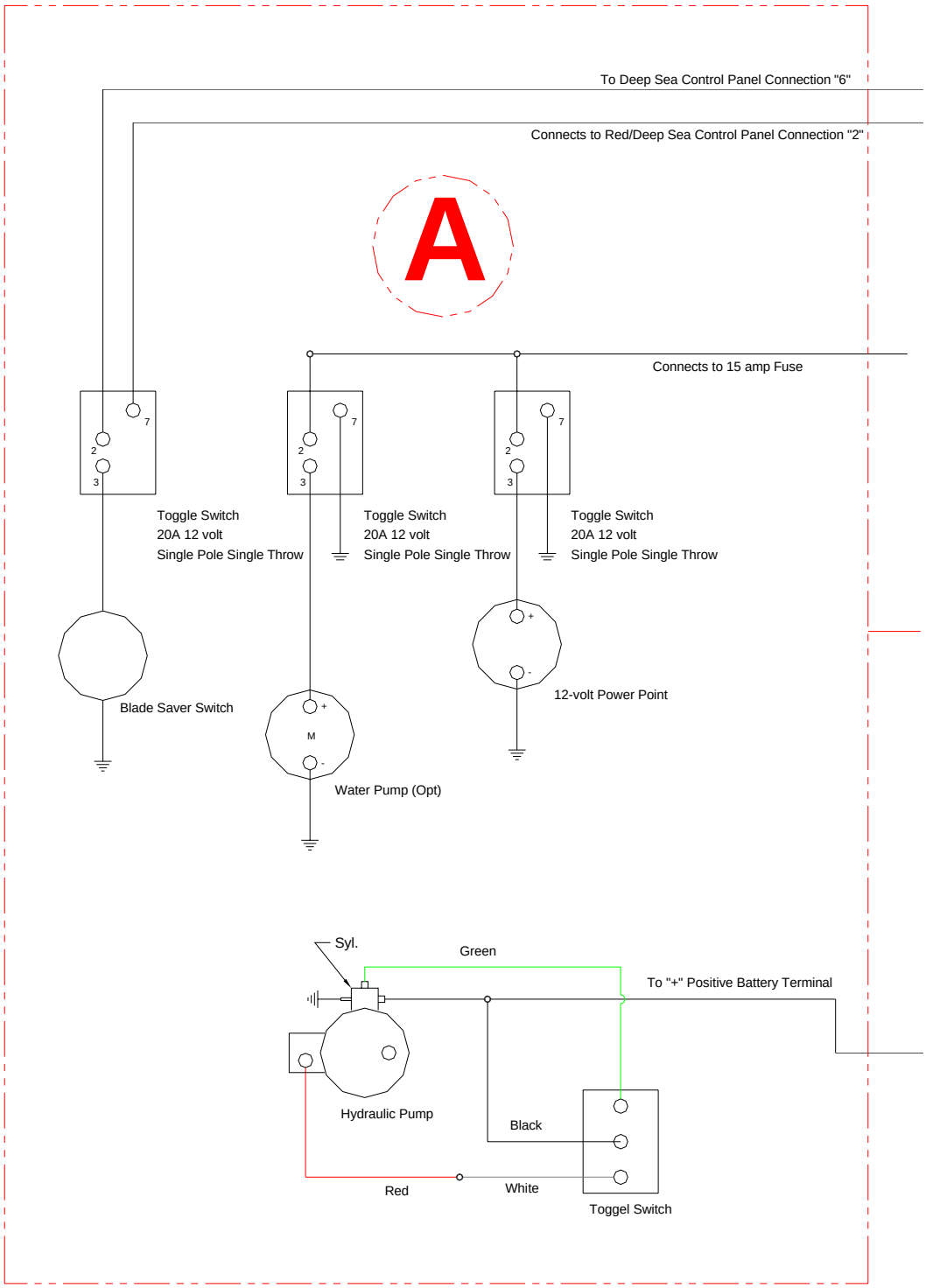
D. Check Rear Axle Drive Gears for:
   1. Misalignment
   2. Broken Teeth
   3. Unusual wear patterns
   4. Keep Clean

H. Electrical System



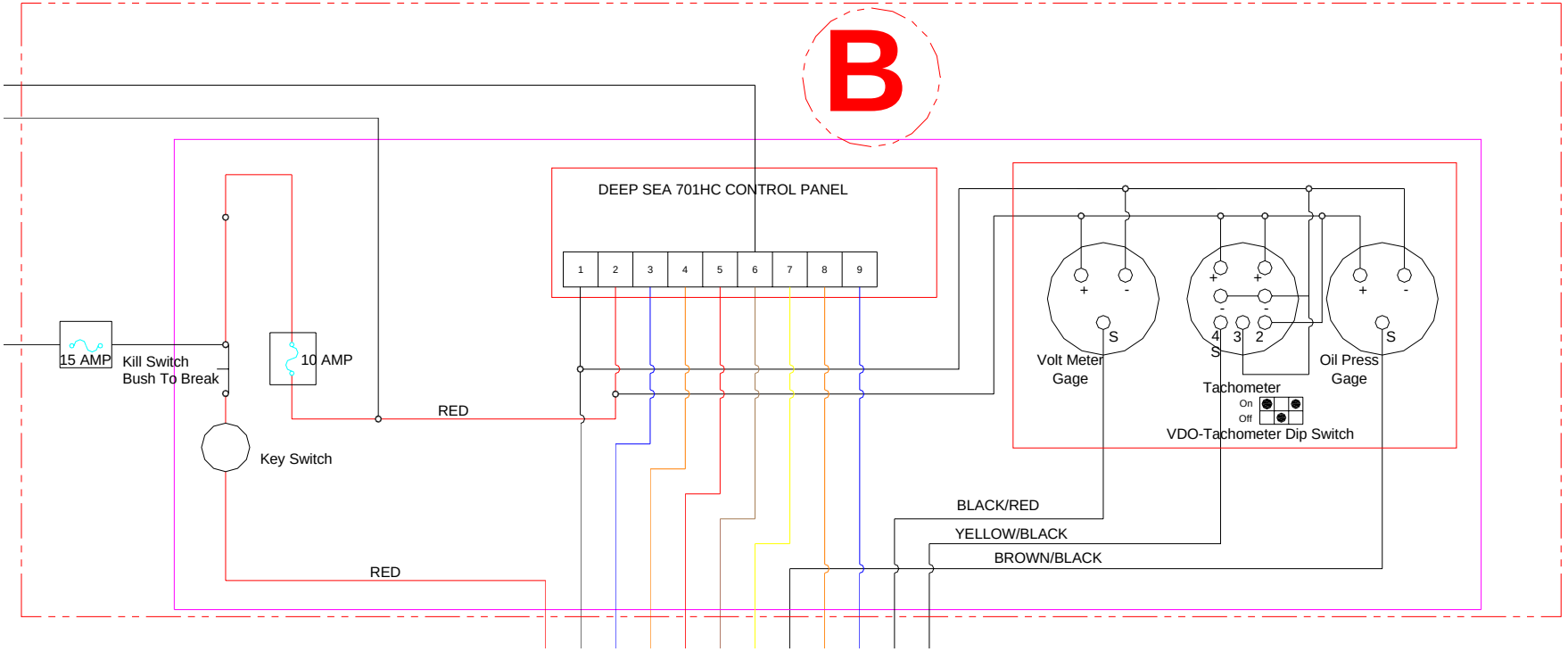
See Section “Letter” for Details
“A” Accessory/Switches
“B” Controls/Instruments
“C” Wiring Harness Connector
“D” Engine

Wiring Section “A” Accessory/Switches



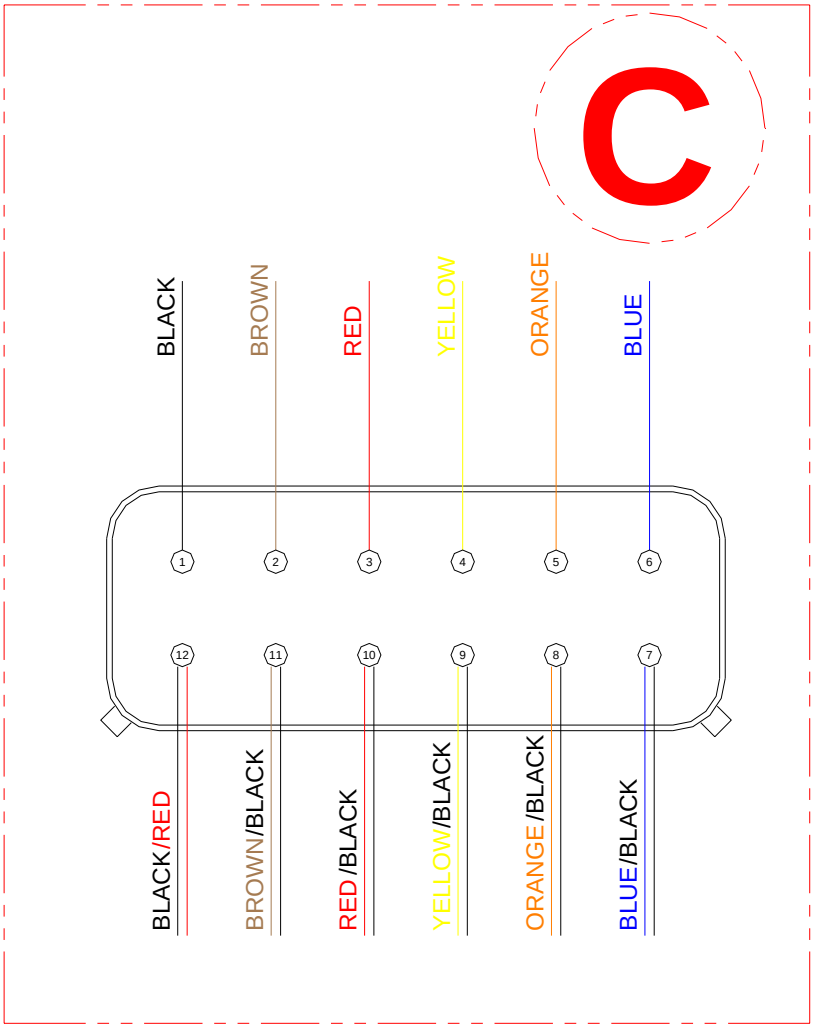
NOTE: Later models do not have lighted toggle switches therefore switch ground will not be present.

Wiring Section “B” Controls/Instruments



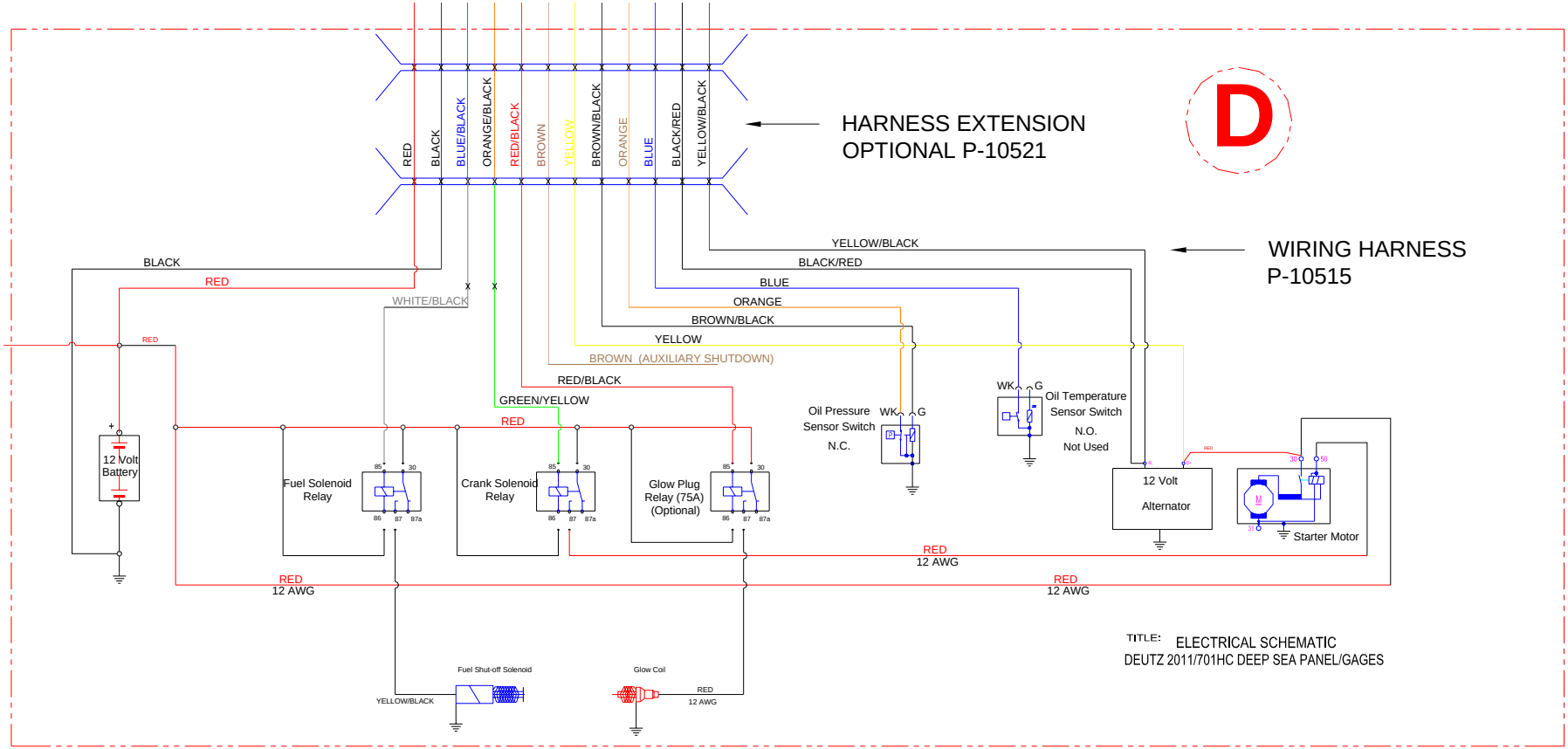
Wiring Section “C” Wiring Harness Connector

Control/Instrument Side



Engine Side

Wiring Section “D” Engine



GLOW PLUG KIT X-10070

IV. PARTS LIST SECTION

A. Ordering Information

1. List model number and serial number of machine.

2. List part number and serial number of part not the item number.

3. All positions on the machine are from the Operator's Position when running the machine

4. Wherever alternate parts are shown due to product improvement, inspect the part you have and provide additional description as necessary.

5. Specify mode of shipping desired, such as, parcel post, truck, U.P.S., best way, etc.

For the nearest Norton distributor call 1-800-554-8003

Common Replacement Parts

Description	Part Number
Belt Powerband 5/3VX560 Set Of (2) (**14", 20" and 26" Blade Size Only**)	237287
Belt Powerband 5/3VX600 Set Of (2) (**30" and 36" Blade Size Only**)	236021
Screw 5/8-11 x 4 Left Hand Thread (Operators Right Side Of Saw)	N1D0263
Screw 5/8-11 x 4 Right Hand Thread (Operators Left Side Of Saw)	N1D0073
Collar Tight (Inner Collar or Flange) Ø4-1/2"	N1E0017
Collar Loose Assembly With Pin (Outer Collar or Flange) Ø4-1/2"	N1E019
Drive Pin ∅3/8 x 1-1/2	9196112
Bearing Blade Shaft ∅2" (1)	237268
Front Wheel Complete 8 x 3 x 1 w/Bearing(1)	N1C0847
Rear Wheel 10 x 3 x 1-1/4 (1)	N1C0061
Wrench 1-5/16"	N1C0112
Transmission Jackshaft	237322

NOTE: All Parts Are Sold As Individual (each) Unless Noted Otherwise

Blades Use Only Norton Diamond Blades. Contact your local Norton Distributor or Norton at 1-800-554-8003 for the best blade for the application.

DECALS FOR

C31XX, C61XX Diesel Saw

UPC	Part Number	Description
70184674659	227264	DECAL BLADE FAILURE WARNI
70184653219	108713	DECAL BLADE GUARD WARNING
70184674633	227238	DECAL CAUTION BELTS
70184674632	227237	DECAL CAUTION GUARDS
70184674630	227235	DECAL CAUTION HOT SURFACE
70184653995	212196	DECAL CLIPPER
70184674649	227243	DECAL DANGER LETHAL FUMES
70184653268	108850	DECAL GUARD LIFT CAUTION
70184653247	108847	DECAL HANDS & FEET CAUTIO
70184674483	227240	DECAL HANDS & FEET CAUTIO
70184673104	108934	DECAL PROPOSITION 65 WARN
70184674481	227234	DECAL SAFETY GEAR CAUTION
70184674647	227241	DECAL WARNING REFUELING
70184628678	**237446**	**DECAL CONSOLE**
70184629168	**237444**	**DECAL RAISE/LOWER**
70184629169	**237445**	**DECAL DEPTH CONTROL**
70184629170	**237245**	**DECAL DIESEL FUEL**

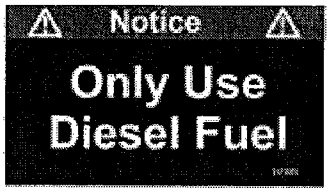
Grant, Bob E.

From: Edwards, Paul S.
Sent: Friday, March 07, 2008 3:20 PM
To: ddonner@ur.com; Grant, Bob E.
Subject: C6136 Decals
Importance: High

Hello David,

Here are the decal locations and part numbers for the decals used on the C61xx and C31xx series concrete saws. If I can help with anything else please let me know.

Console:

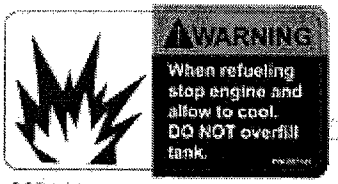


237245
701846xxxxx
DECAL ONLY USE DIESEL FUEL
Replaces "Yellow" Fuel Decal

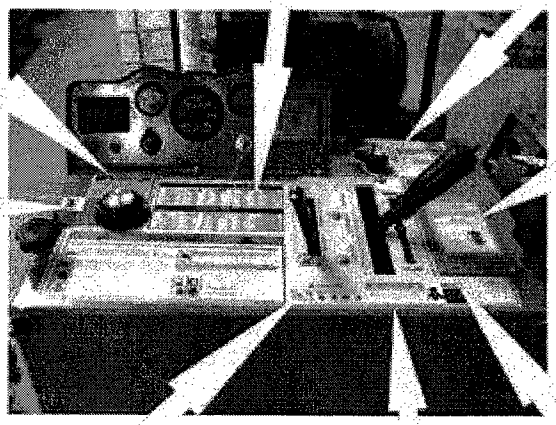
237446
70184628678
DECAL CONSOLE
Large Decal

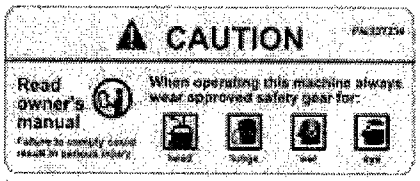
237444
701846xxxxx
DECAL DEPTH CONTROL

237445
701846xxxxx
DECAL RAISE/LOWER

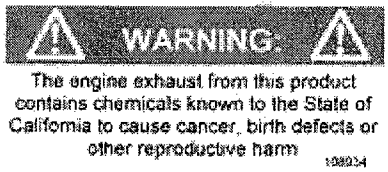


227141
70184674647
DECAL WARNING REFUELING

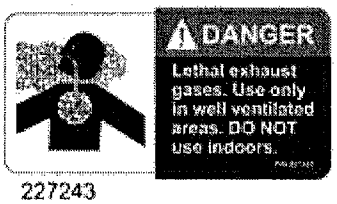




227234
70184674481
DECAL READ OWNER'S MANUAL

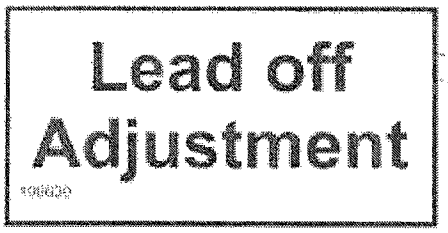

WARNING:
The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm

108934
70184673104
DECAL PROPOSITION 65 WARNING



227243
70184674649
DECAL DANGER LETHAL FUME

Rear of Frame:

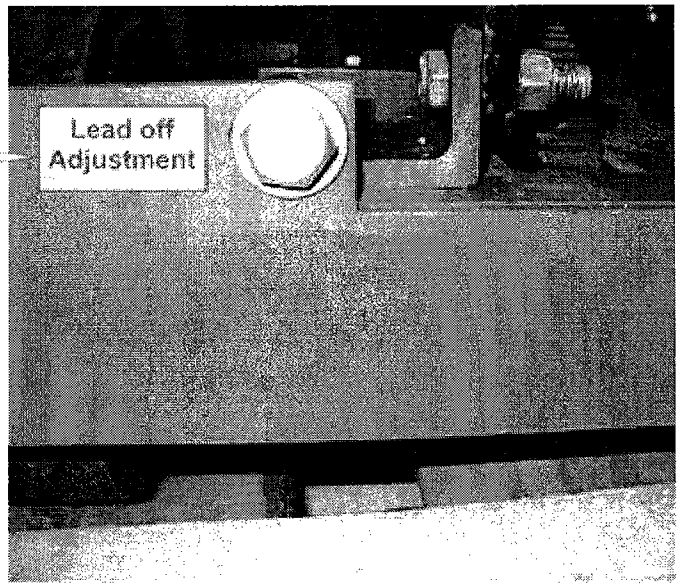


106630

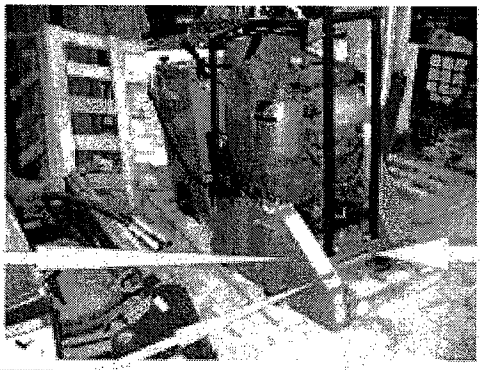
70184654346

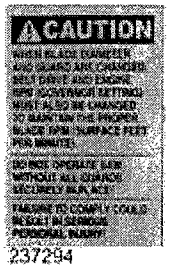
DECAL LEAD OFF ADJUSTMENT

can use Joper REAR AXLE ADJUSTMENT DECAL



Operator's Front and Blade Guard:





237294

DECAL BLADE DIAMETER

108847

70184653247

DECAL CAUTION KEEP HANDS AND FEET

108850

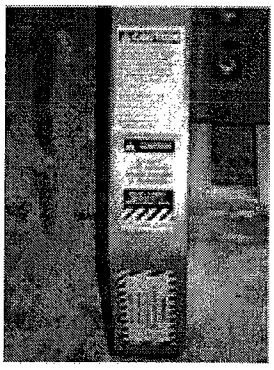
70184653268

DECAL GUARD LIFT CAUTION

108713

70184653219

DECAL BLADE GUARD WARNING



Detail of Blade Guard Front

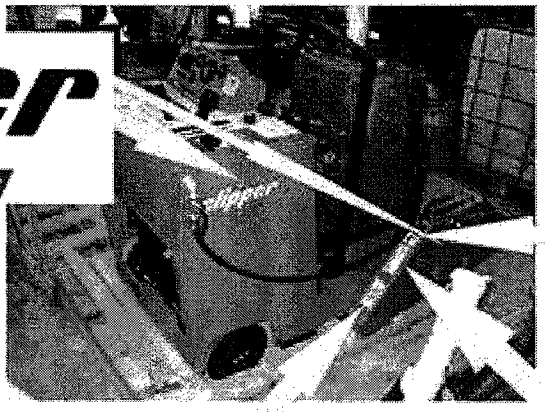
Operator's Right Side:

PRO-CUT PRODUCTS

216317B
70184681275
DECAL PRO-CUT LARGE "NEW
Use on Pro-Cut Machines Only
Both sides of Blade Guard
Side of Frame

clipper
NORTON

212196
70184653995
DECAL Clipper
Use on Clipper Machines Only
Both sides of Blade Guard
Side of Frame



WARNING
In the event of Blade Failure Replace blade guard immediately

227264
70184674659
DECAL BLADE FAILURE WAI
Rear of Blade Guard

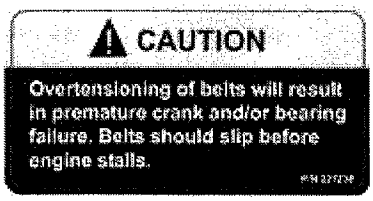
WARNING
TO AVOID PERSONAL INJURY
DO NOT OPERATE
WITHOUT BLADE
GUARD IN PLACE

108713
70184653219
DECAL BLADE GUARD WARNING

CAUTION
Read owner's manual
When operating this machine always wear approved safety gear for:

227234
70184674481
DECAL SAFETY GEAR CAUTION

Operator's Left Side:


CAUTION
Overtensioning of belts will result in premature crank and/or bearing failure. Belts should slip before engine stalls.

227238
70184674633
DECAL CAUTION BELTS

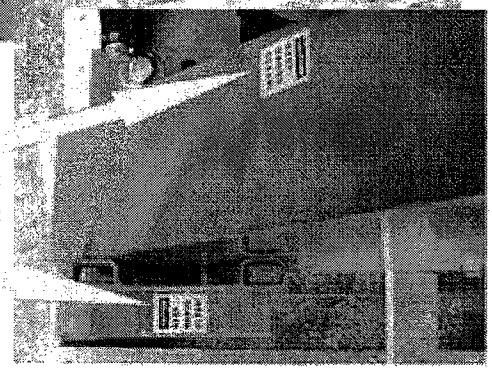
227237
70184674632
DECAL CAUTION GUARDS

237295
DECAL CAUTION KEEP HANDS CLEAR

227235
70184674630
DECAL CAUTION HOT SURF

PRO
PRODUCT

216317B
70184681275
DECAL PRO-CUT LARGE "NE
Side of Console, Side of Belt G
Use on Pro-Cut Machines Only



237295
DECAL CAUTION KEEP HANDS CLEAR

clipp

212196
70184653995
DECAL Clipper
Side of Console, Side of Belt Gu
Use on Clipper Machines Only

Regards,

Paul Edwards
Design/Product Engineer
Saint-Gobain Abrasives
Phone: 770-967-3954 ext 251
Fax: 770-967-9244
Email: Paul.S.Edwards@saint-gobain.com

B: Blade Guard Conversion Chart

Straight Drive (Non-Jackshaft Models Only)

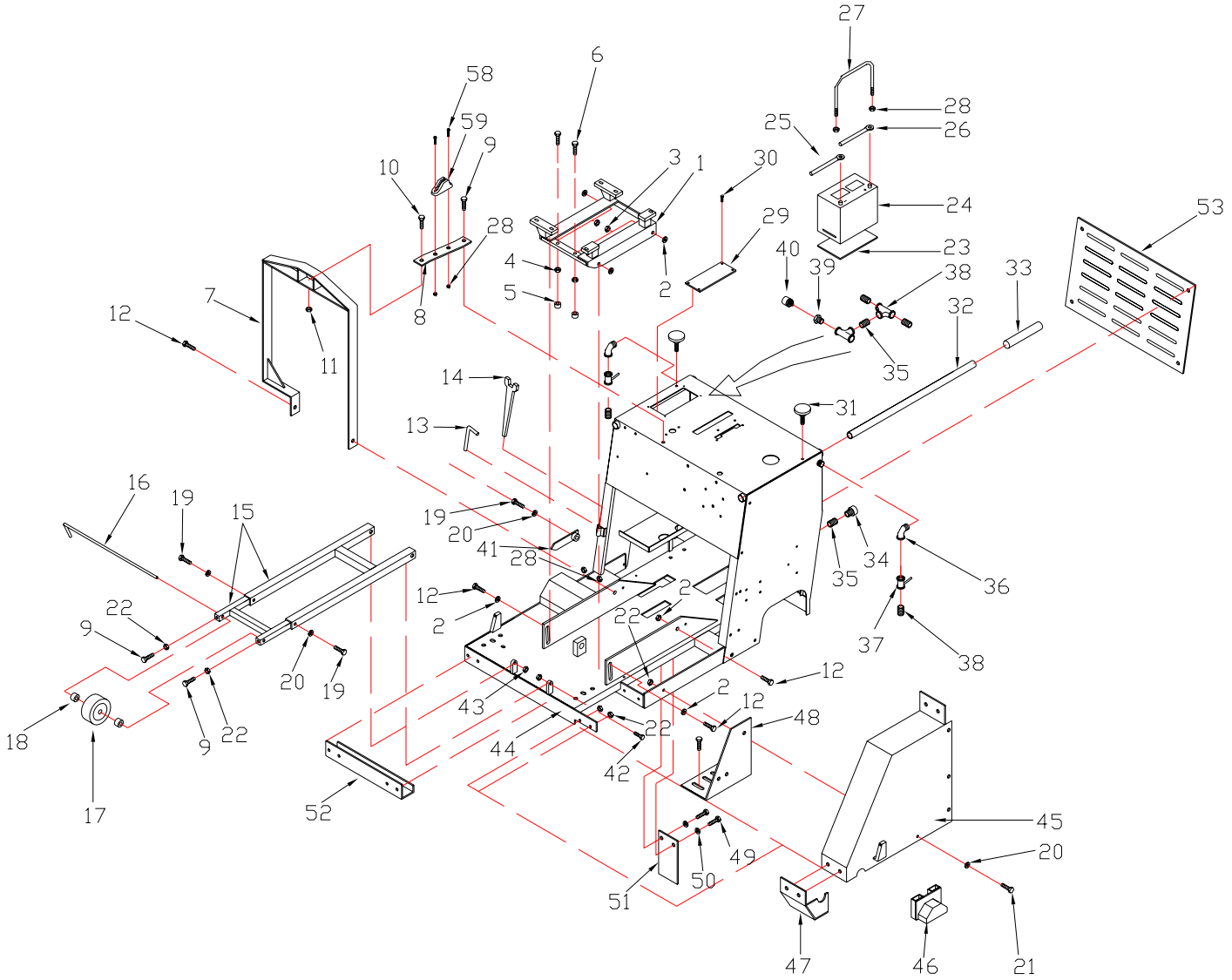
Blade Size	14"	20"	26"	30"	36"
Engine Pulley P/N	237219	237219	237219	237219	237219
Engine Pulley OD	4" x 2" 11G 3VX	4" x 2" 11G 3VX	4" x 2" 11G 3VX	4" x 2" 11G 3VX	4" x 2" 11G 3VX
Engine Speed (RPM)	2,800 RPM	2,700 RPM	2,600 RPM	2,600 RPM	2,500 RPM
Blade Drive Belt P/N	237287	237287	237287	236021	236021
Blade Drive Belt Size	5/3VX560	5/3VX560	5/3VX560	5/3VX600	5/3VX600
Blade Shaft Pulley P/N	237221	237221	237221	237222	237222
Blade Shaft Pulley Size	4-3/8"D X 2"B 10G	4-3/8"D X 2"B 10G	4-3/8"D X 2"B 10G	7.0OD X 2"B 10G	7.0OD X 2"B 10G
Blade Shaft Speed (RPM)	2,560 RPM	2,469 RPM	2,194 RPM	1,340 RPM	1,290 RPM
Blade SFM	9,383 SFM	12,925 SFM	14,936 SFM	11,669 SFM	13,464 SFM
Inner Collar P/N	N1E0017	N1E0017	N1E0017	N1E0023	N1E0023
Inner Collar OD	4-1/2"	4-1/2"	4-1/2"	6"	6"
Outer Collar P/N	N1E0019	N1E0019	N1E0019	N1E0025	N1E0025
Outer Collar Size	4-1/2"	4-1/2"	4-1/2"	6"	6"
Transmission Belt P/N	237246	237246	237246	237246	237246
Transmission Belt Size	3VX670	3VX670	3VX670	3VX670	3VX670
Blade Guard P/N	N1B0078	N1B0079	N1B0080	N1B0081	N1B0128
Maximum Depth of Cut	4-5/8" (124 mm)	8-5/8" (219 mm)	10-5/8" (270 mm)	12-5/8" (321 mm)	14-5/8" (371 mm)

CAUTION!

When changing blade diameters blade shaft RPM must be changed. In some cases it may be necessary to change both the pulleys and engine RPM to achieve the correct blade shaft operating rpm.

C: Service Parts

Main Frame Group 31HP and 61HP



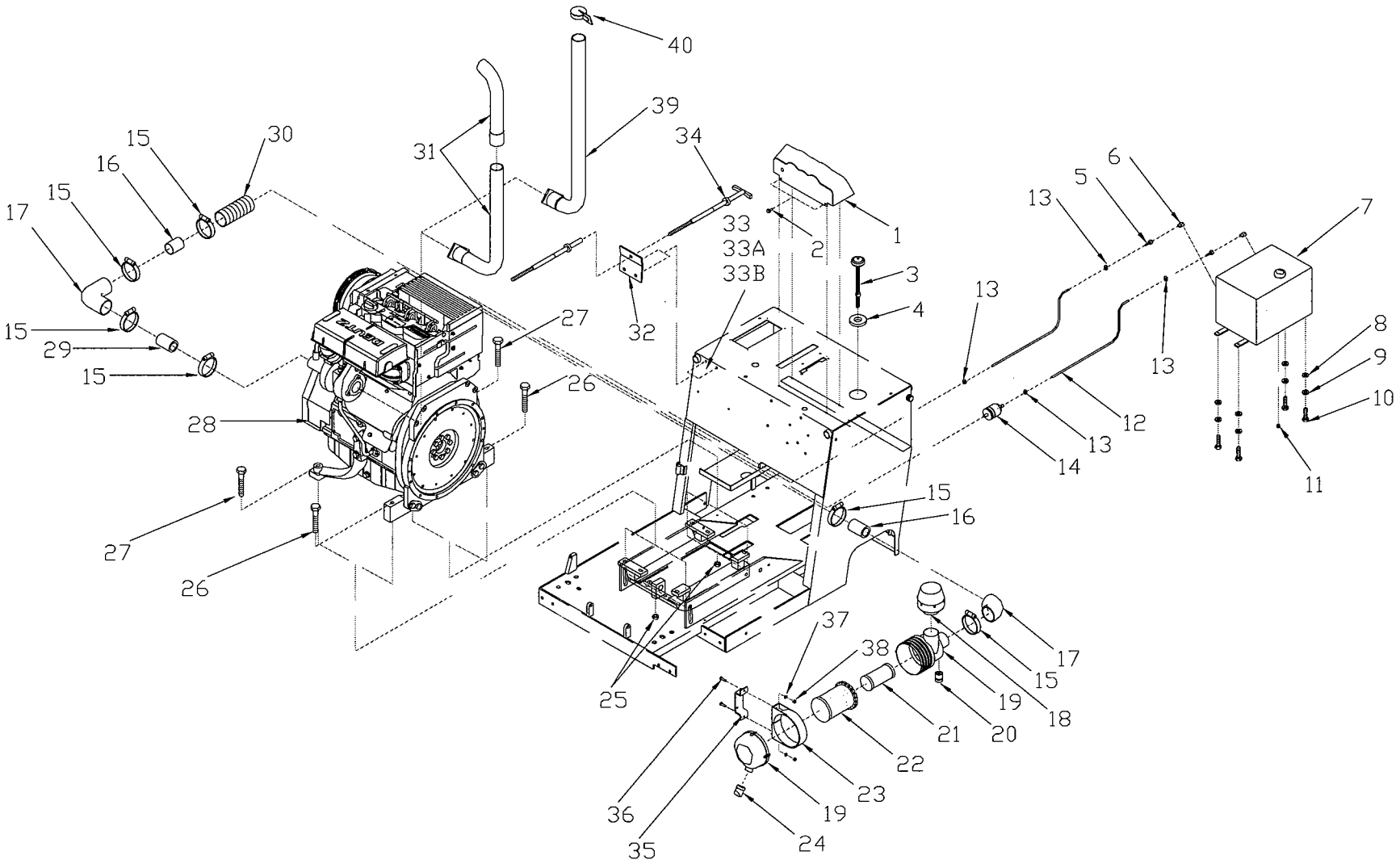
Main Frame Group 31HP and 61HP

ITEM	DESCRIPTION	PART No.	ITEM	DESCRIPTION	PART No.
1	ENG. BASE WELDMENT	237338	27	BATTERY CLIP	237380
2	WASHER 5/8 SAE	8172013	28	NUT 1/4-20 HEX LOCK	8160001
3	NUT 5/8-11 HEX LOCK	8160007	29	COVER PLATE	237362
4	NUT 5/8-11 HEX	8142007	30	SCR 10-24 X 1 SOCKET HD	8042007
5	NYLON CAP	237369	31	HANDLE LOCK KNOB	N1C0002
6	SCR 5/8-11 X 5 HEX HD CAP	8041152	32	HANDLE BAR	237350
7	LIFT FRAME	237366	33	HANDLE BAR GRIP	N1C0004
8	LIFT FRAME BRACE	237364	34	HOSE SWIVEL	N1D0082
9	SCR 3/8-16 X 1 1/4 HEX HD CAP	8041051	35	CLOSE NIPPLE	N1D0017
10	SCR 3/8-16 X 1 1/2 HEX HD CAP	8041052	36	PIPE ELBOW 1/2	N1D0016
11	NUT 3/8-16 HEX LOCK	8162003	37	WATER VALVE	N1C0021
12	SCR 5/8-11 X 2 1/2 HEX HD CAP	8041144	38	TEE 1/2" PIPE	N1D0015
13	B/S LOCK PIN	N1C0094	39	REDUCER BUSHING	N1D0008
14	B/S WRENCH 15/16	N1C0112	40	WATER SAFETY SWITCH	224496
15	FRONT POINTER ASSEMBLY	237367	41	REAR POINTER	N1E0084
16	FRONT POINTER ROD	237368	42	SCR 1/2-13 X 3 HEX HD CAP	8041102
17	FRONT POINTER WHEEL	N1C0023	43	NUT 1/2-13 HEX LOCK	8160005
18	COLLAR SET .500 I.D.	N1C0009	44	MAIN FRAME WELDMENT 61HP	237301
19	SCR THUMB 3/8-16 X 2	237418	44	MAIN FRAME WELDMENT 31HP	237302
20	WASHER 3/8 SPRING LOCK	8177012	45	BELT GUARD C31xx/C61xx	237312
21	SCR 3/8-16 X 1 HEX HD CAP	8041050	46	SHAFT GUARD WELDMNT	237391
22	SWITCH EMERGENCY STOP	237410	47	BELT PROTECTOR	237390
23	MAT BATTERY	237429	48	BELT GUARD REINFORCEMENT	237313
24	BATTERY 12 V	-NA-	49	SCR 1/4-20 X 1 HEX HD CAP	8041006
25	BATTERY CAB. POS	237427	50	WASHER 1/4 SAE	8172007
26	BATTERY CAB. NEG	237428	51	MUD FLAP	N1C0012

Main Frame Group 31HP and 61HP

52	SHAFT COVER 61 HP	237398	56	NUT 3/8-16 HEX	8142003
52	SHAFT COVER 31 HP	237397	57	SCR 3/8-16 X 2 1/2 HEX HD CAP	8041056
53	CONSOLE REAR COVER 61 HP	237392	58	SCR 1/4-20 X 1-1/4 SOCKET HD CAP	9048093
53	CONSOLE REAR COVER 31 HP	237393	59	ROPE CLEAT	237267

Engine Group 61HP

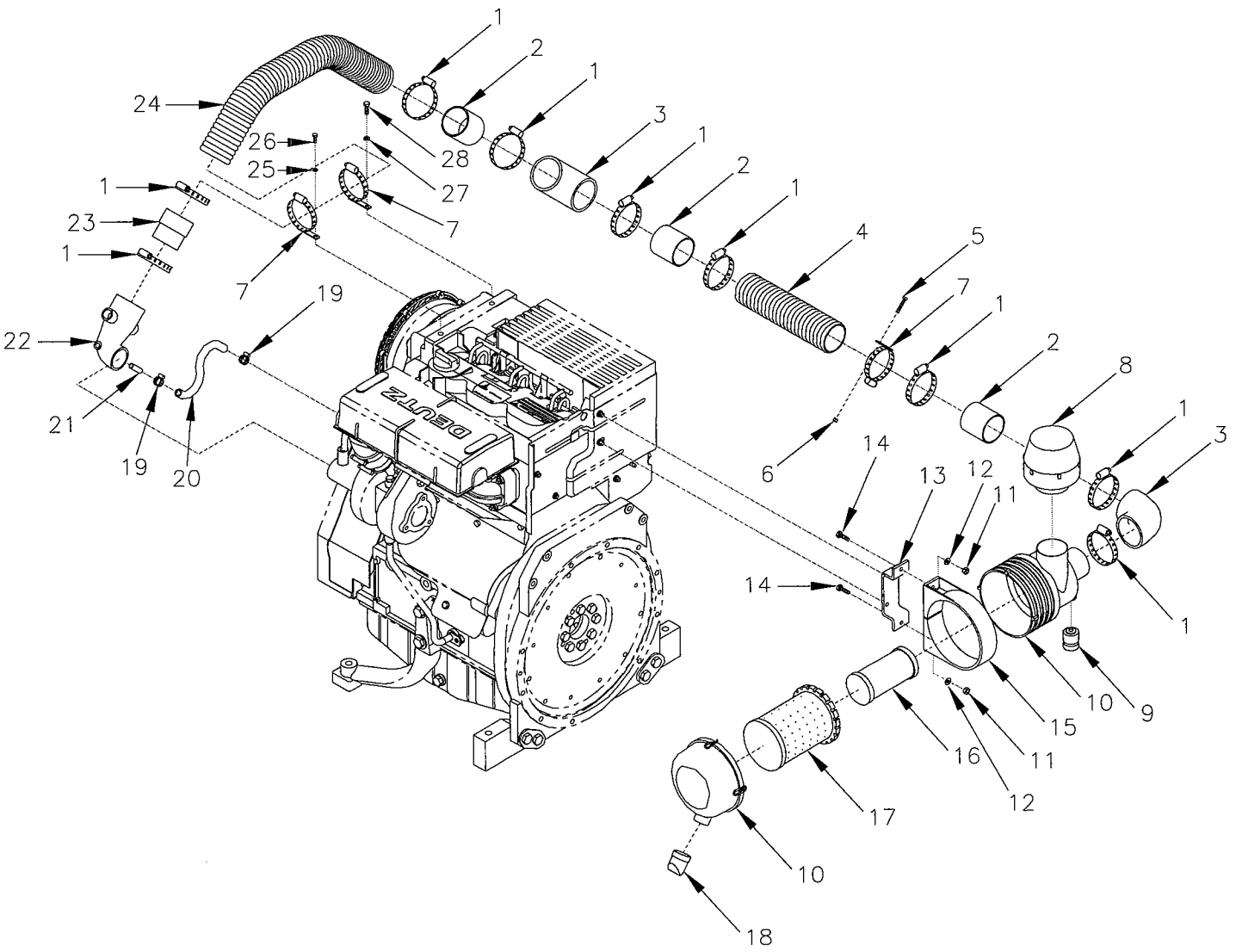


Shown With Old Style Air Intake System. See Page 68 For New Style Air Intake System

Engine Group 61HP

ITEM	DESCRIPTION	PART No.	ITEM	DESCRIPTION	PART No.
1	See INSTRUMENT PANEL Detail	-NA-	23	BRACKET MOUNTING AIR CLEANER	237278
2	GROMMET	N1C0066	24	DUST BOOT (VACUALTOR VALVE)	237279
3	FUEL TANK CAP W/GAGE	237284	25	NUT 7/16-14 HEX HEAD	8143004
4	FUEL TANK GROMMET	N1C0016	26	SCR 7/16-14 X 4 1/2 HEX HD CAP	8041086
5	FIT BARB HOSE 1/4FPTX5/16	9602006	27	SCR 7/16-14 X 3 1/2 HEX HD CAP	8041082
6	ELBOW 1/4MPT x 1/4FPT STREET BRASS	9499001	28	ENG 61 HP DEUTZ DIESEL F3L2011 Deutz Specification 74822	236024
7	FUEL TANK	237200	29	COUPLER	237404
8	WASHER 5/16 SPING LOCK	8177011	30	AIR HOSE 3"ID X 47" LONG	237434
9	WASHER 5/16 SAE	8172008	31	MUFFLER COMPLETE 61HP	237411
10	SCR 5/16-18 X 1 HEX HD CAP	8041028	32	THROTTLE CABLE BRACKET	237336
11	PLUG HEX HEAD 1/2 MPT	237280	33	SCR 3/8-16 X 1 1/4 HEX HD CAP	8041051
12	FUEL LINE 5/16ID X 1/2"OD X 25"L	237433	33A	WASHER 3/8 SPRING LOCK	8177012
13	CLAMP HOSE WORM 3/8"TO 5/8"	227126	33B	SCR 3/8-16 X 1 1/4 HEX HD CAP	8041051
14	IN-LINE FUEL FILTER	N1C0003	34	CABLE THROTTLE LOCK 5'	237241
15	BAND CLAMP 1-7/8TO5 SAE72	235139	35	MOUNT FILTER	237394
16	COUPLER 3" x 3"	237403	36	SCR 5/16-18 X 1-1/4 HEX HD CAP	8041029
17	ELBOW 90° 3" x 3" 90°	237402	37	WASHER 5/16 SAE	8160002
-NA-	AIR CLEANER ASSY includes (18,19,20, 21, 22. 23,24, and 25)	X-10134	38	NUT 5/16-18 NYLOCK	8172008
18	PRE-CLEANER SYKLONE 9000R	237273	39	EXHAUST PIPE USE WITH RAIN CAP C61xx	237436
19	AIR CLEANER BODY	237274	40	RAIN CAP 1-3/4"	237290
20	SERVICE INDUCATOR	237275			
21	AIR FILTER INNER (SAFETY)	237276			
22	AIR FILTER OUTTER (PIRMARY)	237277			

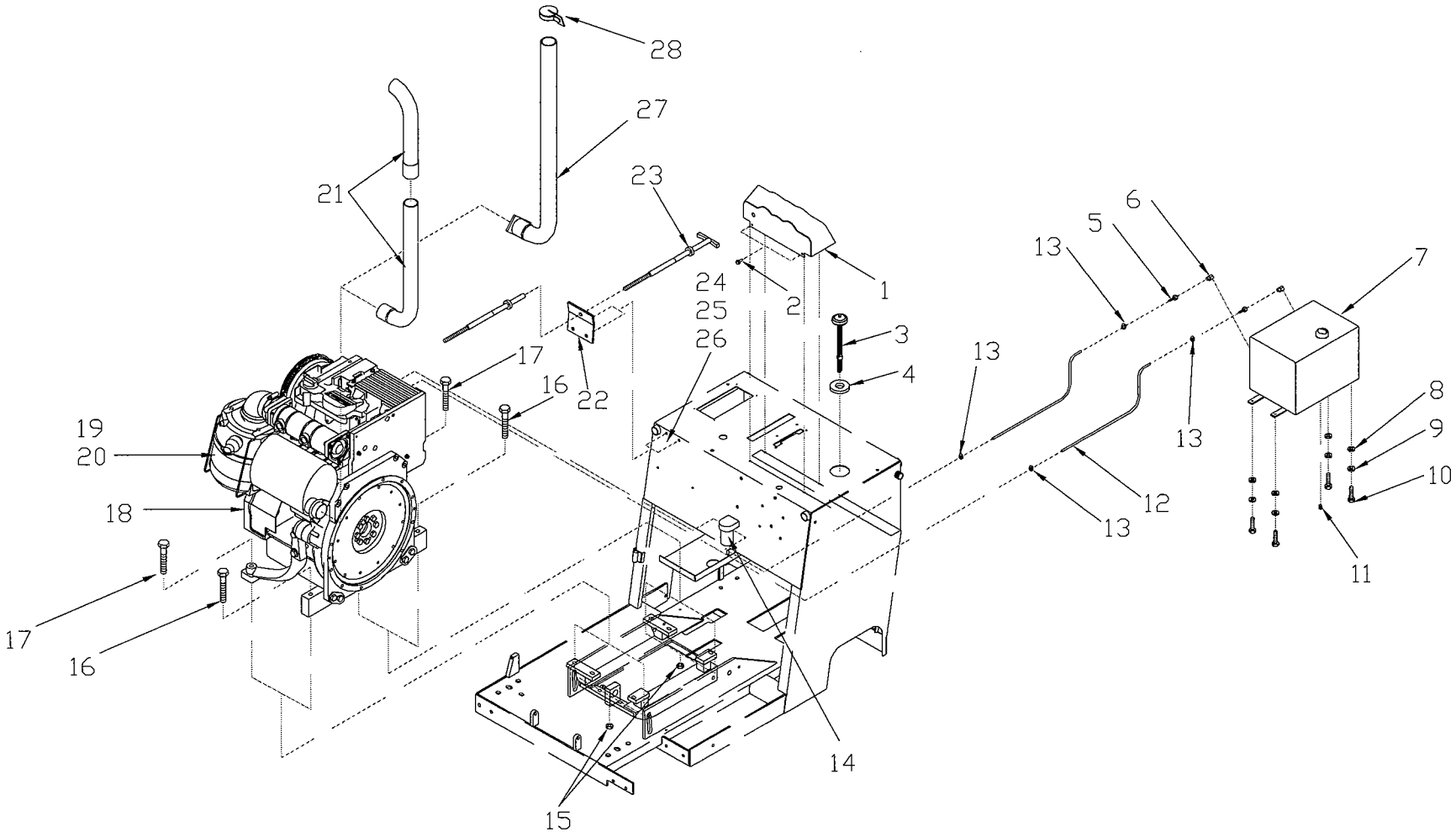
Air Intake C61xx Serial Number 07091070 and Higher



Air Intake C61xx Serial Number 07091070 and Higher

ITEM	DESCRIPTION	PART No.	ITEM	DESCRIPTION	PART No.
1	BAND CLAMP 1-7/8 TO 5 SAE72	235139	14	SCR 5/16-18 X 1-1/4 HEX HD CAP	8041029
2	COUPLING 3"x3"	237403	15	BRACKET MOUNTING AIR CLEANER	237278
3	ELBOW 90° 3"x3"	237402	16	AIR FILTER INNER (SAFETY)	237276
4	AIR HOSE 3"ID x 12" LONG	237439	17	AIR FILTER OUTTER (PIRMARY)	237277
5	SCR 1/4-20X1 1/2 HEXHDC	8041008	18	DUST BOOT (VACUALTOR VALVE)	237279
6	NUT 1/4-20 HEX LOCK NYLOK	8160001	20	TUBE 1/2"ID X 3/4"OD OIL RESISTANT BUNA	237288
7	AIR HOSE CLAMP/BRACKET C61xx	237443	21	OIL VENT TUBE FROM DEUTZ ENGINE	-NA-
-NA-	AIR CLEANER ASSY C61xx includes (8, 9, 10, 15, 16, 17, 18, & 19)	X-10134	22	ELBOW TURBO INLET C61xx	237402A
8	PRE-CLEANER SYKLONE 9000R	237273	23	COUPLING 3"OD x 2-3/4"OD x 3" LONG	237404
9	SERVICE INDUCATOR	237275	24	AIR HOSE 3"ID x 24" LONG	237440
10	AIR CLEANER BODY	237274	25	WASHER 1/4 SPRING LOCK	8177010
11	NUT 5/16-18 NYLOCK	8160002	26	SCR 1/4-20X7/8 HEXHDCAP	8041005
12	WASHER 5/16 SAE	8172008	27	WASHER 5/16 SPRING LOCK	8177011
13	MOUNT FILTER	237394	28	SCR 5/16-18 X 1 HEXHD CAP	8041028
			-NA-	AIR HOSE UPGRADE KIT Includes: ALL AIR HOSE COMPONENTS (1 qty=9, 2 qty=3, 3 qty=2, 4 qty=1, 5 qty=1, 6 qty=1, 7 qty=3, 19 qty=2, 20 qty=1, 22 qty=1, 23 qty=1, 24 qty=1) Does not include Air Filter Assembly X-10134	237293

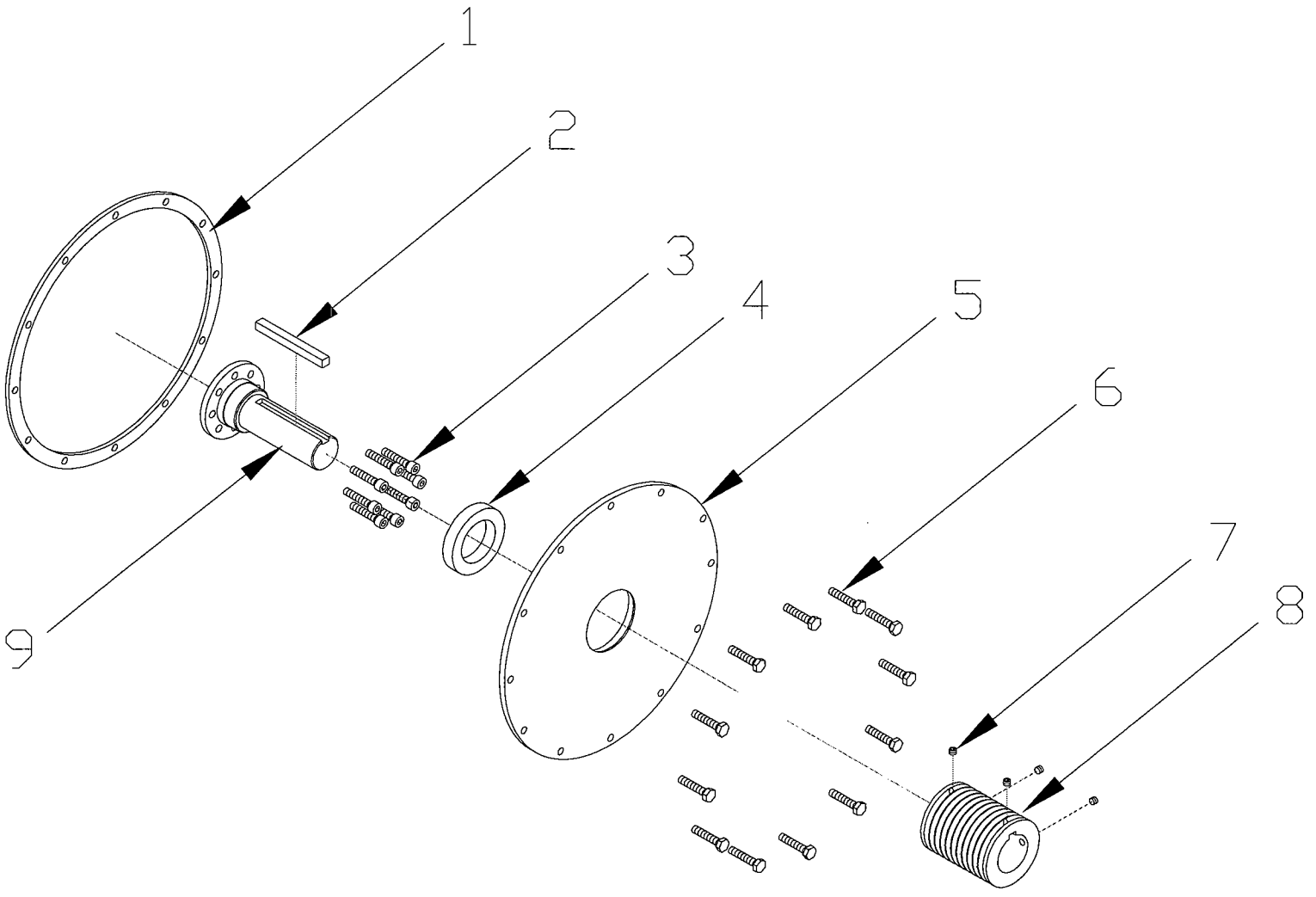
Engine Group 31HP



Engine Group 31HP

ITEM	DESCRIPTION	PART No.	ITEM	DESCRIPTION	PART No.
1	See INSTRUMENT PANEL Detail	-NA-	15	NUT 7/16-14 HEX HEAD	8143004
2	GROMMET	N1C0066	16	SCR 7/16-14 X 4 1/2 HEX HD CAP	8041086
3	FUEL TANK CAP W/GAGE	237284	17	SCR 7/16-14 X 3 1/2 HEX HD CAP	8041082
4	FUEL TANK GROMMET	N1C0016	18	ENG 31 HP DEUTZ D. D2011L02i Deutz Specification 7622	236032
5	FIT BARB HOSE 1/4FPTX5/16	9602006	19	AIR FILTER ASSEMBLY 31HP	237281
6	ELBOW 1/4MPT x 1/4FPT STREET BRASS	9499001	20	AIR FILTER PRIMAERY 31HP ONLY	237282
7	FUEL TANK	237204	21	MUFFLER COMPLETE 31 HP	237412
8	WASHER 5/16 SPING LOCK	8177011	22	THROTTLE CABLE BRACKET	237336
9	WASHER 5/16 SAE	8172008	23	CABLE THROTTLE LOCK 5'	237241
10	SCR 5/16-18 X 1 HEX HD CAP	8041028	24	SCR 3/8-16 X 1 1/4 HEX HD CAP	8041051
11	SCR 1/2-20UNF X 1 HEX HEAD CAP	8042095	25	WASHER 3/8 SPRING LOCK	8177012
12	FUEL LINE 5/16ID X 1/2"OD X 25"L	237433	26	SCR 3/8-16 X 1 1/4 HEX HD CAP	8041051
13	CLAMP HOSE WORM 3/8"TO 5/8"	227126	27	EXHAUST PIPE USE WITH RAIN CAP C31xx	237437
14	FUEL FILTER ELEMENT 31HP ONLY	237285	28	RAIN CAP 1-3/4"	237290

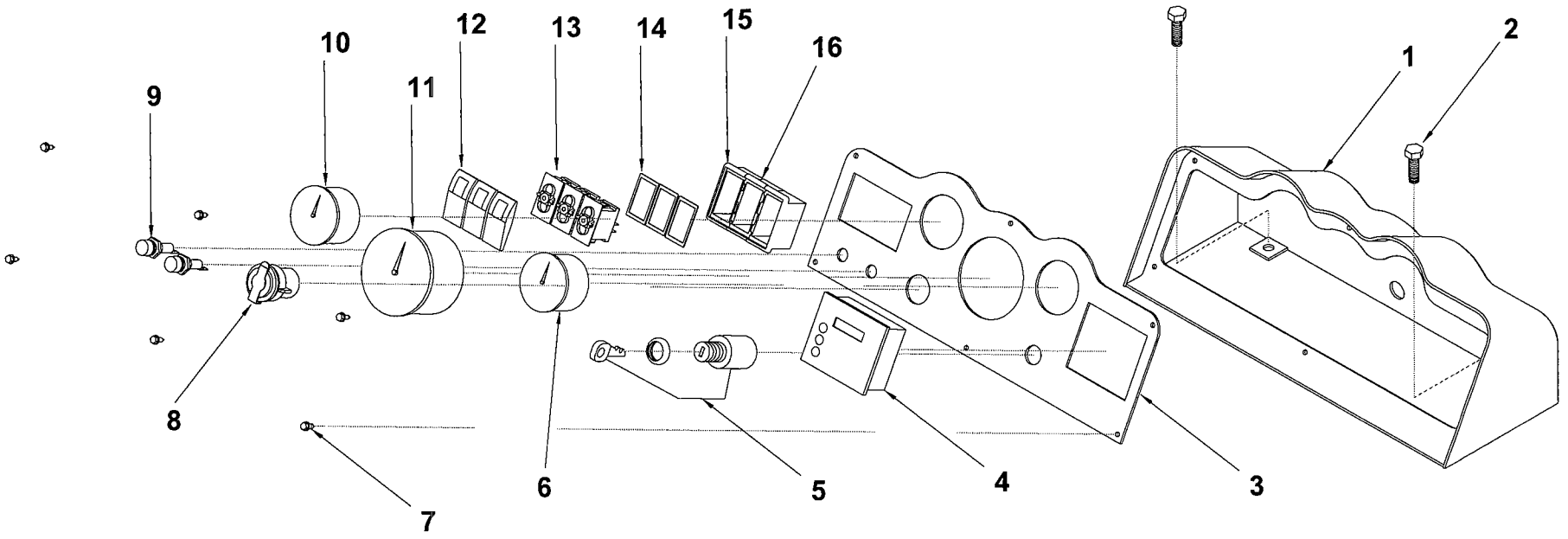
Stub Shaft Group 31HP and 61HP



Stub Shaft Group 31HP and 61HP

ITEM	DESCRIPTION	PART No.
1	SPACER RING BEARING PLATE	237131
2	KEY 1/2" X 1/2" X 5"	9201272
3	SCR M10 x 1.0 x 50 HEX HEAD CAP DIN912 (Sold Individually) (8 required)	237271
4	BEARING 6013C3	237432
5	BEARING PLATE	237218
6	SCR M10 X 50 1.5 DIN933 (Sold Individually) (31HP 12 required) (61HP 11 required)	237242
7	SCR 3/8-16 X 1/4" SET (Sold Individually) (4 required)	9083122
8	PULLEY 4" x 2" 11G 3VX Engine	237219
9	STUB SHAFT	237217

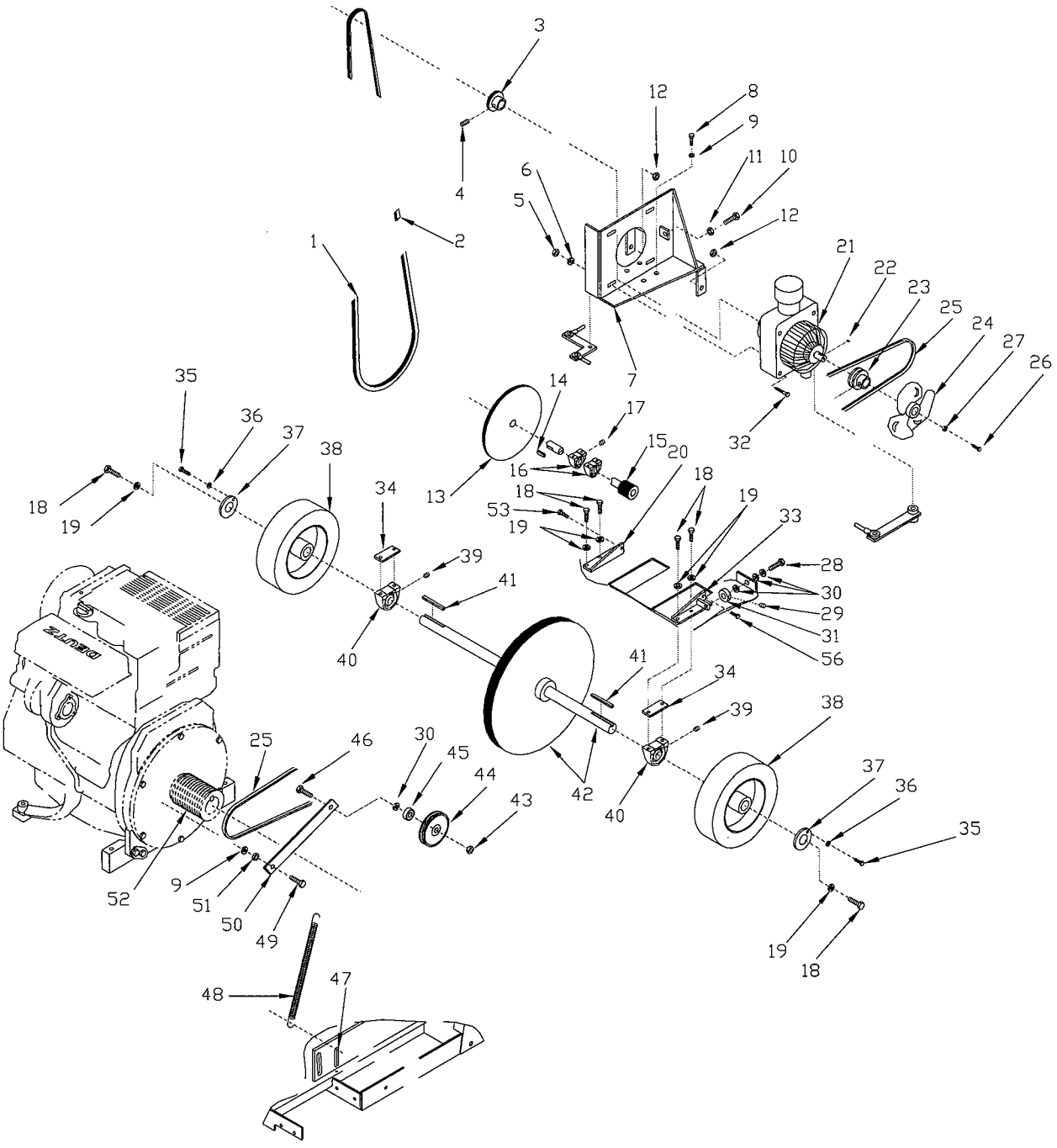
Instrument Panel Group 31HP and 61HP



Instrument Panel Group 31HP and 61HP

ITEM	DESCRIPTION	PART No.	ITEM	DESCRIPTION	PART No.
1	INSTRUMENT PANEL HOUSING	237226A	10	VOLT METER	237231
2	SCR 3/8-16 X 1 HEX HD CAP (Sold Individually (2 required)	9041050	11	TACHOMETER	237228
3	INSTRUMENT PANEL FRONT	237226B	12	SWITCH ACTUATOR (Sold Individually) (3 required)	237227A
4	CONTROL PANEL DEEP SEA	237233	13	SWITCH BODY (Sold Individually) (3 required)	237227
5	KEY SWITCH / ON OFF (Includes Key)	237234	14	GASKET SWITCH (Sold Individually) (3 required)	237227B
6	OIL PRESSURE GAGE	237232	15	MOUNTING PANEL END (Sold Individually) (2 required)	237227D
7	SCR 10-24 X 1 SOCKET HD (Sold Individually) (8 required)	8042007	16	MOUNTING PANEL MIDDLE (Sold Individually)	237227C
8	POWER POINT 12 VOLT DC	237230			
9	FUSE HOLDER PANEL MOUNT (Sold Individually) (2 required)	237229			
-NA-	FUSE 20A 1/4x1-1/4 (For Accessories)	237270			
-NA-	FUSE 15A 1/4x 1-1/4 (For Engine)	107483			

Transmission and Rear Axle Group 31HP and 61HP



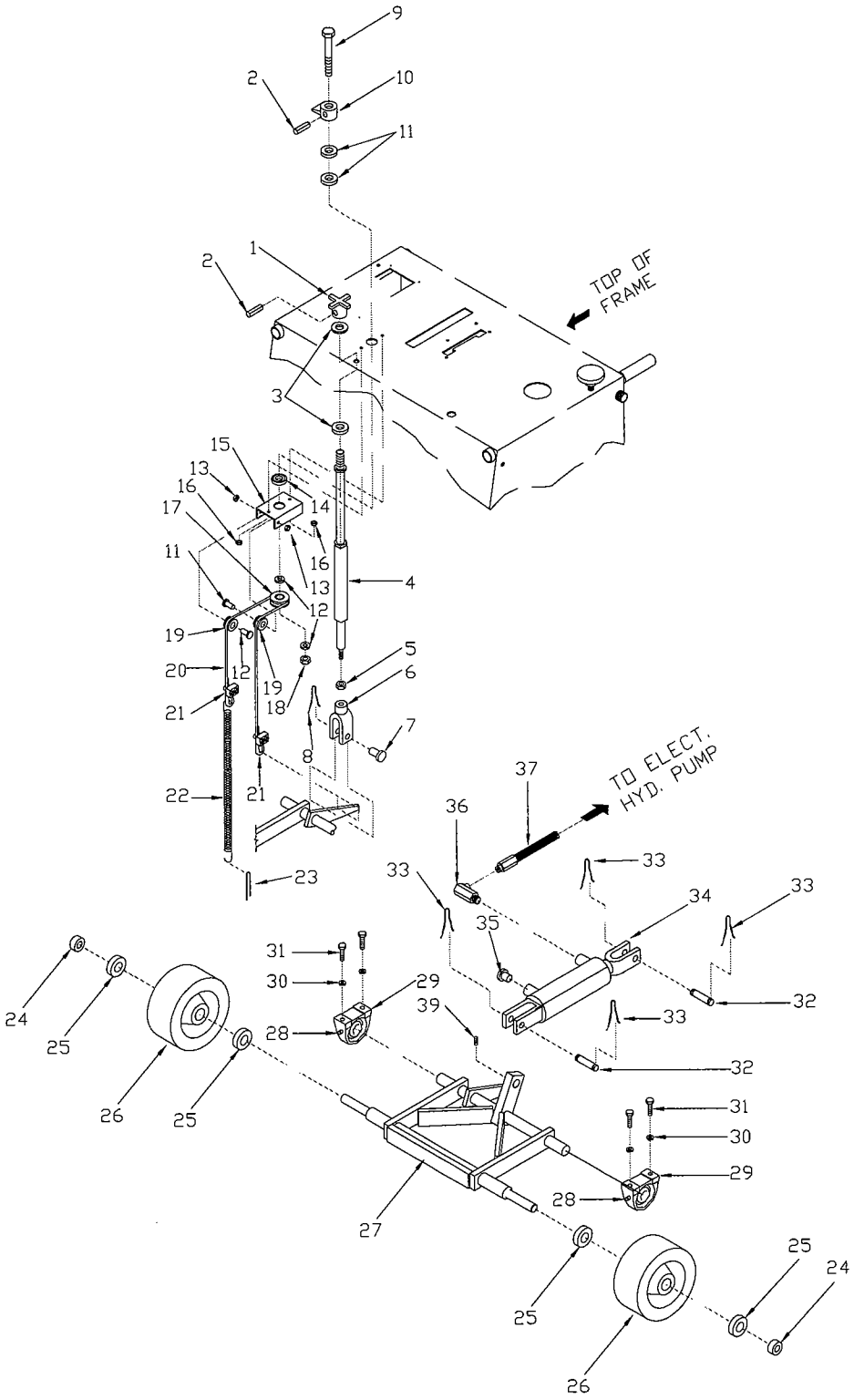
Transmission and Rear Axle Group 31HP and 61HP

ITEM	DESCRIPTION	PART No.	ITEM	DESCRIPTION	PART No.
1	# 40 DRIVE CHAIN	N1C0050	25	BELT 3VX670 (1)	237246
2	# 40 CONNECTOR LINK	N1C0051	26	SCR 10-24 X 1 ROUND HEAD	237415
3	CHAIN SPROCKET	N1COO55	27	WASHER 3/16 LOCK	8176009
4	SCR 1/4-20 X 1/4 SET CUP	407035	28	SCR 5/8-11 X 3-1/2 HEX HD	8041148
5	NUT 3/8-16 HEX LOCK	8162003	29	SCR 5/16 X 1/4 SET	9083105
6	WASHER 3/8 SAE ZN PLT	8172009	30	WASHER 5/8 SAE	8172013
7	TRANS PLATFORM 61HP	237319	31	COLLAR SET .625 I.D.	101132A
7	TRANS PLATFORM 31HP	237320	32	SCR 3/8-16 X 3-1/2 HEX HD	8041060
8	SCR 3/8-16 X 3/4 HEX HD CAP	8041049	33	MOUNT FOOT, L.H.	237353
9	WASHER 3/8 SPRING LOCK	8177012	34	SPACER PLATE	N1E0074
10	SCR 5/16-18 X 2 HEX HD CAP	8041032	35	SCR 5/16-18 X 3/4 HEX HD	8041026
11	NUT 5/16-18 HEX	8142002	36	WASHER 5/16 SPRING LOCK	8177011
12	NUT 1/2-13 HEX LOCK	8160005	37	WHELL MOUNT WASHER	N1E0089
13	CHAIN SPROCKET	N1C0052	38	REAR WHEEL	N1C0061
14	KEY 3/16 X 2	9201086	39	GREASE ZERK	N1D0104
15	JACKSHAFT C61xx/C31xx	237322	40	BEARING TAP BASE 1-1/4 (Sold Individually, 2 Required)	237422
16	BEARING TAP BASE 3/4" (Sold Individually 2 Required)	N1C0047	41	KEY 1/4 x 3-3/8	9201093A
17	GREASE ZERK	N1D0075	42	REAR AXLE WELDMENT 31HP (Includes Large Gear)	237306
18	SCR 1/2-13 X 1-1/2 HEX HD CAP	8041096	42	REAR AXLE WELDMENT 61HP (Includes Large Gear)	237307
19	WASHER 1/2 SPRING LOCK	8176014	43	NUT 5/8-11 HEX LOCK	8160007
20	MOUNT FOOT R.H.	N1E0048	44	IDLER PULLEY	237342
21	TRANSMISSION M6	106344	45	BEARING 99R10	237408
22	# 5 WOODRUFF KEY	N1C0043	46	SCR 5/8-11 X 2 HEX HD CAP	8041142
23	TRANSMISSION PULLEY	237323	47	PIN 3/16 X 2 COTTER	8197063
24	TRANSMISSION FAN	N1C0059	48	SPRING	N1C0046

Transmission and Rear Axle Group

ITEM	DESCRIPTION	PART No.	ITEM	DESCRIPTION	PART No.
49	SCR M10 X 50 1.5 DIN933	237242	52	SEE STUB SHAFT GROUP	-NA-
50	IDLER ARM	N1E0075	53	SCR 1/2-13 X 1-3/4 HEX HD CAP	8041097
51	NUT M10 1.5 DIN933	27006			

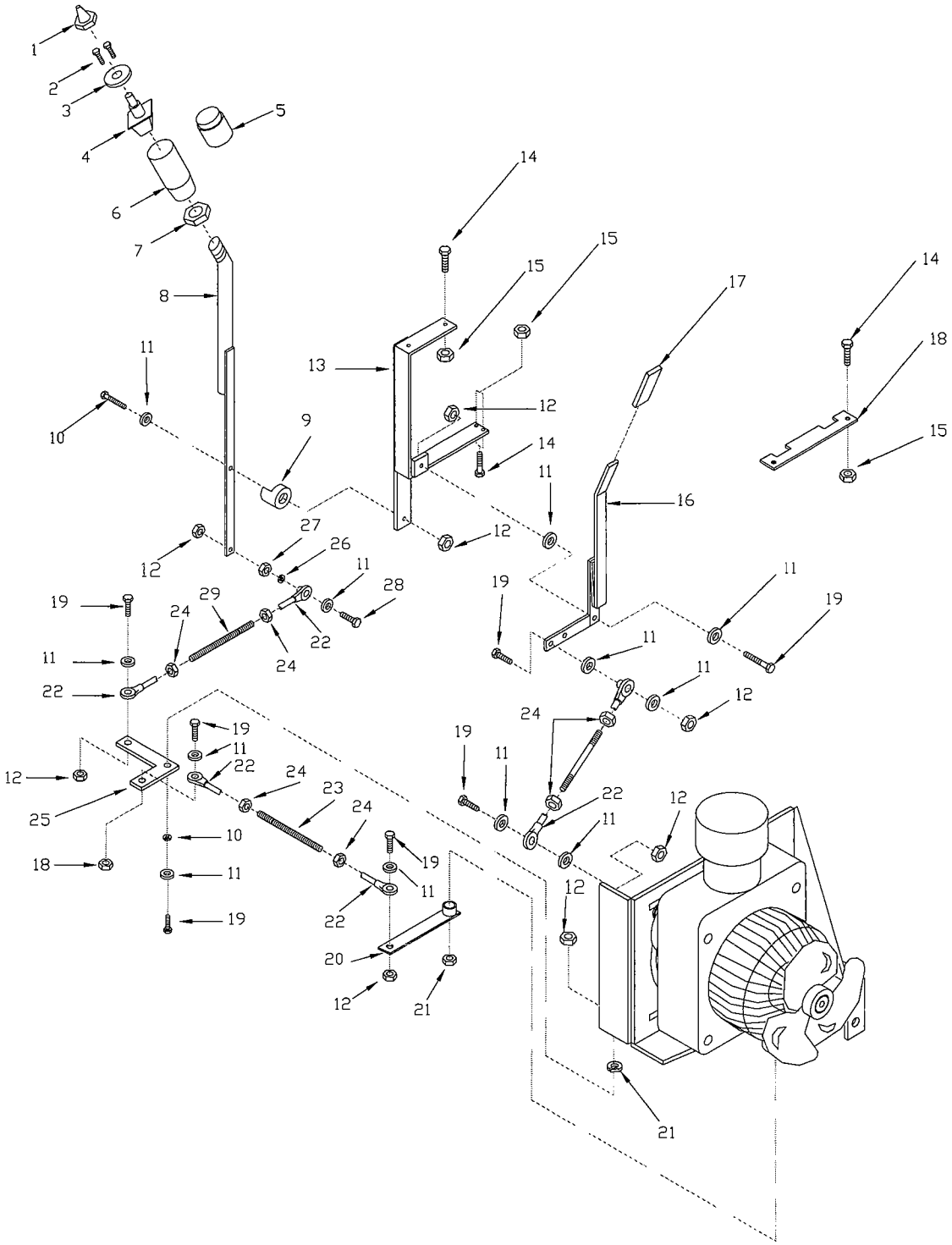
Depth Stop and Front Axle Group 31HP and 61HP



Depth Stop and Front Axle Group 31HP and 61HP

ITEM	DESCRIPTION	PART No.	ITEM	DESCRIPTION	PART No.
1	DEPTH STOP HANDLE	N1C0078	21	CABLE CLAMP	N1C0085
2	PIN 1/8 X 1 ROLL	237406	22	SPRING	N1C0083
3	WASHER 1/2 SAE	8172011	23	COTTER PIN 3/16 X 2	237407
4	DEPTH STOP	N1E0054	24	COLLAR SET 1	N1C0087
5	NUT, 1/2-13 HEX JAM	8143005	25	WASHER 1" SAE	8172017
6	CLEVIS	N1C0090	26	FRONT WHEEL 8" x 3" x 1"	N1C0847
7	CLEVIS PIN	N1D0078	27	FRONT AXLE WELD 61HP	237330
8	COTTER PIN 1/8 X 1	N1D0079	27	FRONT AXLE WELD 31HP	237331
9	SCR 3/8-16 X 2 1/2 HEX HD CAP	8041056	28	GREASE ZERK	N1D0076
10	DEPTH IND. POINTER	N1E0327	29	BEARING TAP BASE 1-1/4	237422
11	SCR 1/4-20 X 1 HEX HD CAP	8041006	30	WASHER 1/2 SPRING LOCK	8176014
12	WASHER 3/8 SAE ZN PLT	8172009	31	SCR 1/2-13 X 1 1/4 HEX HD CAP	8041095
13	NUT, 1/4-20 HEX LOCK	8160001	32	CYLINDER PIN	237247
14	FLANGE BEARING	N1C0077	33	HAIR PIN COTTER	237266
15	DEPTH INDICATOR MNT BR	N1E0063	34	HYDRAULIC CYLINDER	N1C0082
16	NUT, 1/4 - 20 HEX HD CAP	8124001	35	CYLINDER BREATHER	N1D0080
17	CABLE PULLEY	N1E0001	36	BUSHING 1/2 X 1/4 REDUCING	9510004
18	NUT, 3/8-16 HEX LOCK	8162003	37	HYDRAULIC HOSE ASSY	N1C0093
19	CABLE PULLEY	N1C0076	38	SCR 3/8-16 X 1/2 SET	227107
20	DEPTH IND. CABLE	N1C0086			

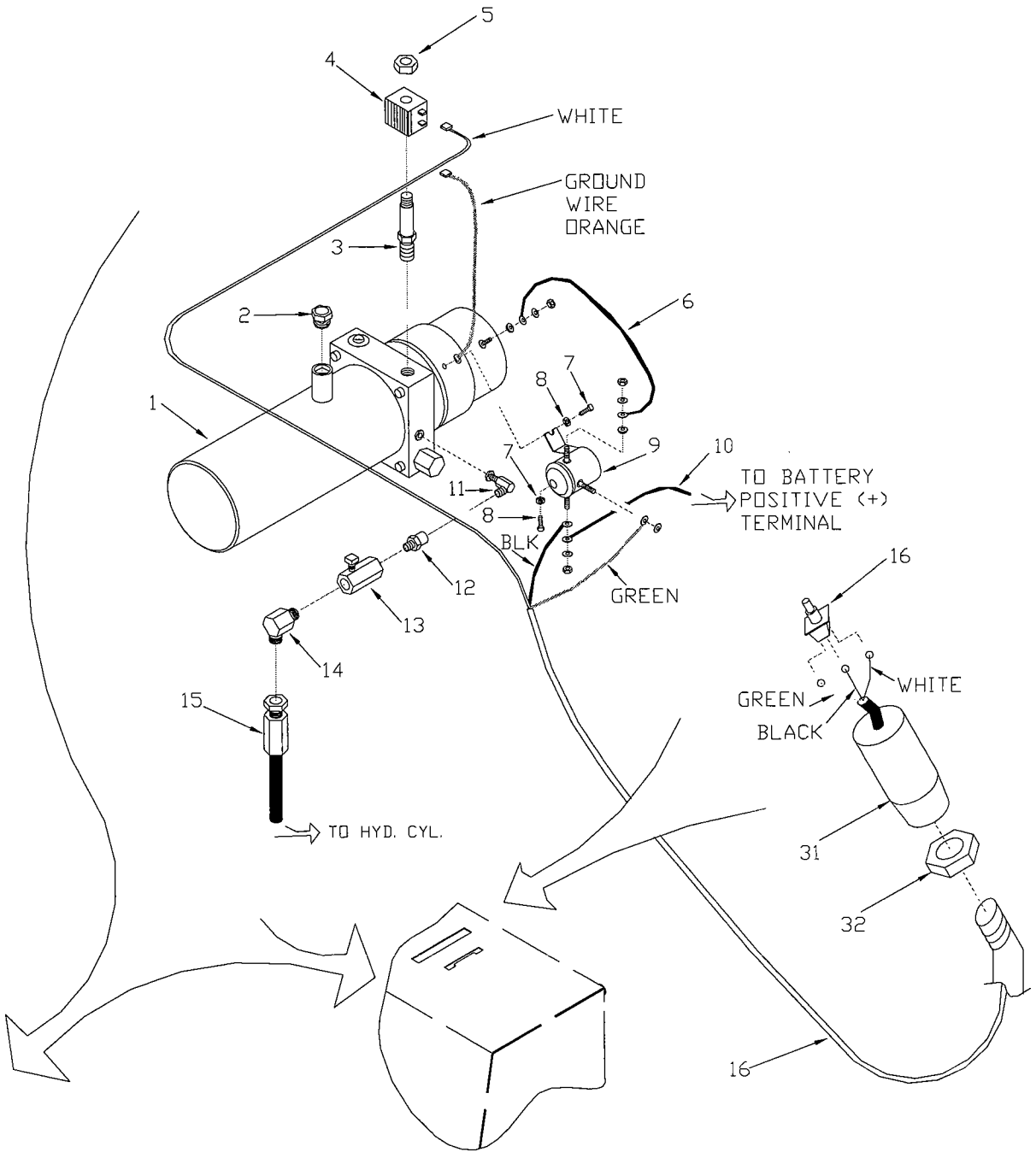
Controls and Lever Group



Controls and Lever Group

ITEM	DESCRIPTION	PART No.	ITEM	DESCRIPTION	PART No.
1	SWITCH BOOT	N1C0072	22	ROD END	N1C0075
2	SCREW	N1D0240	23	THREADED ROD	N1E0080
3	SWITCH MNT. PL	N1E0243	24	NUT 3/8-24 HEX JAM GR2 ZN	231054
4	RAISE/LOWER SWITCH	N1C0088	25	BELL CRANK	N1E0071
5	RUBBER BOOT	N1C0375	26	WASHER 3/8 SPRING LOCK	8177012
6	SWITCH HANDLE	N1E0265	27	NUT 3/8-16 HEX	8142003
7	NUT 7/8-9 HEX JAM	8150009	28	SCR 3/8-16 X 2 HEX HD CAP	8041054
8	SPEED CONTROL LEVER	237389	29	THREADED ROD	N1E0081
9	FRICTION PAD	N1E0059			
10	SCR 3/8-16 X 2 HEX HD CAP	8041054			
11	WASHER 3/8 SAE ZN PLT	8172009			
12	NUT 3/8-16 HEX LOCK	8162003			
13	LEVER SUPPORT	N1E0058			
14	SCR 1/4-20 X 3/4 HEX HD CAP	8041004			
15	NUT 1/4-20 HEX LOCK	8160001			
16	ENGAGE. LEVER	237382			
17	HAND GRIP	N1C0005			
18	GATE PLATE	N1E0079			
19	SCR 3/8-16 X 1 1/2 HEX HD CAP	8041052			
20	TRANS CONTROL LEVER	237321			
21	NUT 1/2-13 HEX	8143005			

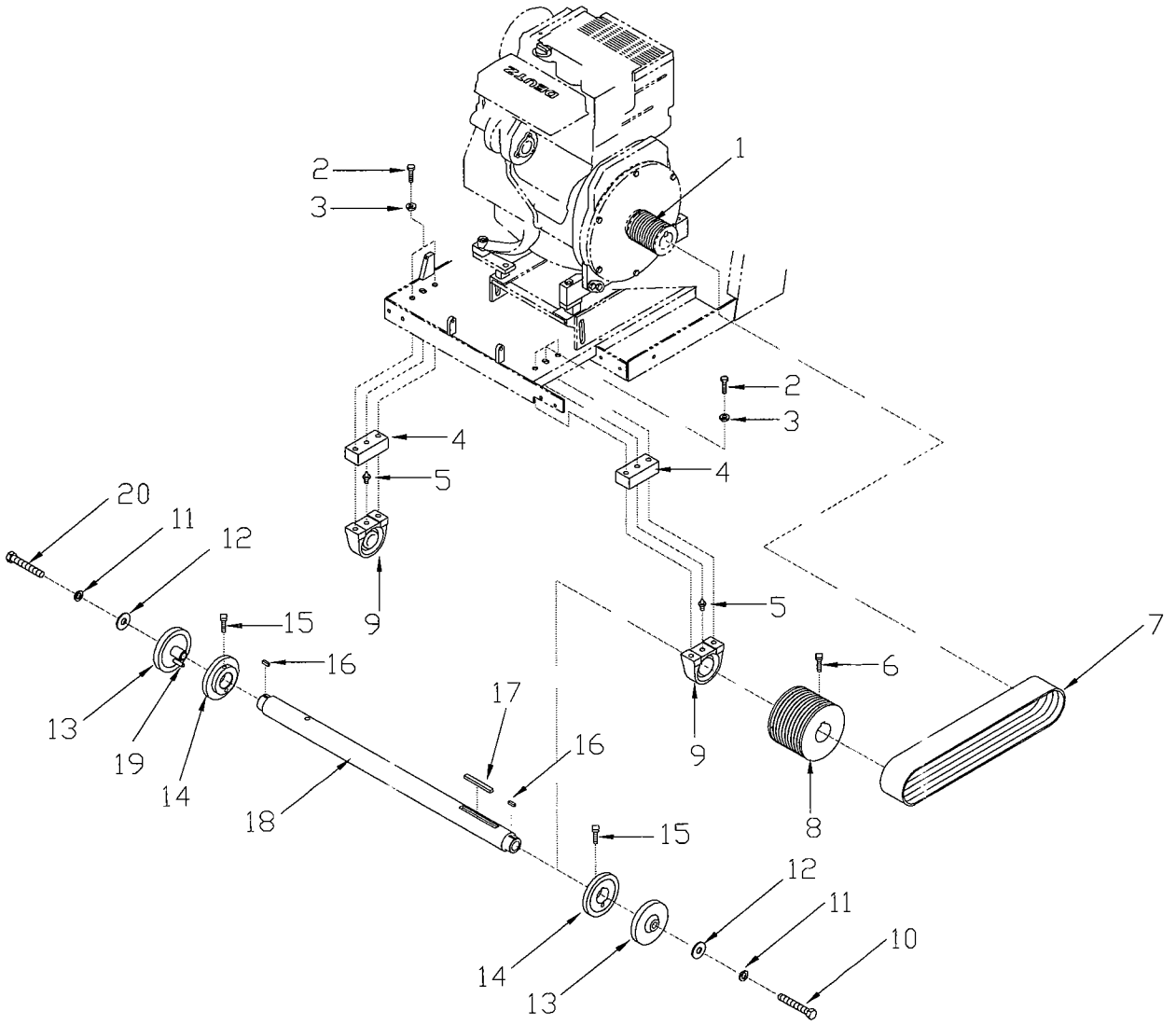
Electro-Hydraulic Group 31HP and 61HP



Electro-Hydraulic Group

ITEM	DESCRIPTION	PART No.	ITEM	DESCRIPTION	PART No.
1	HYDRAULIC PUMP (FLUID: USE ATF DEXTRON B)	149001	12	HYD FITTING 1/4	N1D0006
2	BREATHER CAP 3/4MPT	237269	13	FLOW CONTROL VALVE	N1C0079
3	SOLINOID VALVE	N1C0182	14	ELBOW	N1D0007
4	SOLINOID MAGNET	N1C0181	15	HYDRAULIC HOSE ASSY.	N1C0093
5	NUT	N1D0110	16	RAISE / LOWER SWITCH	N1C0088
6	CABLE ASSY	N1C0183	17	SWITCH HANDLE	N1E0265
7	FLATWASHER 1/4"	N1D0111	18	NUT 3/4-10 JAM	N1D0288
8	BOLT 1/4-20 x 1/2	N1D0049	19	WIRE ASSY	N1C0089
9	SOLINOID (MOTOR)	N1C0184	31	SWITCH HANDLE	N1E0265
10	BATTERY CABLE	N1C0034	32	NUT 7/8-9 HEX JAM	8150009
11	HYD FITTING/RING	N1D0001			

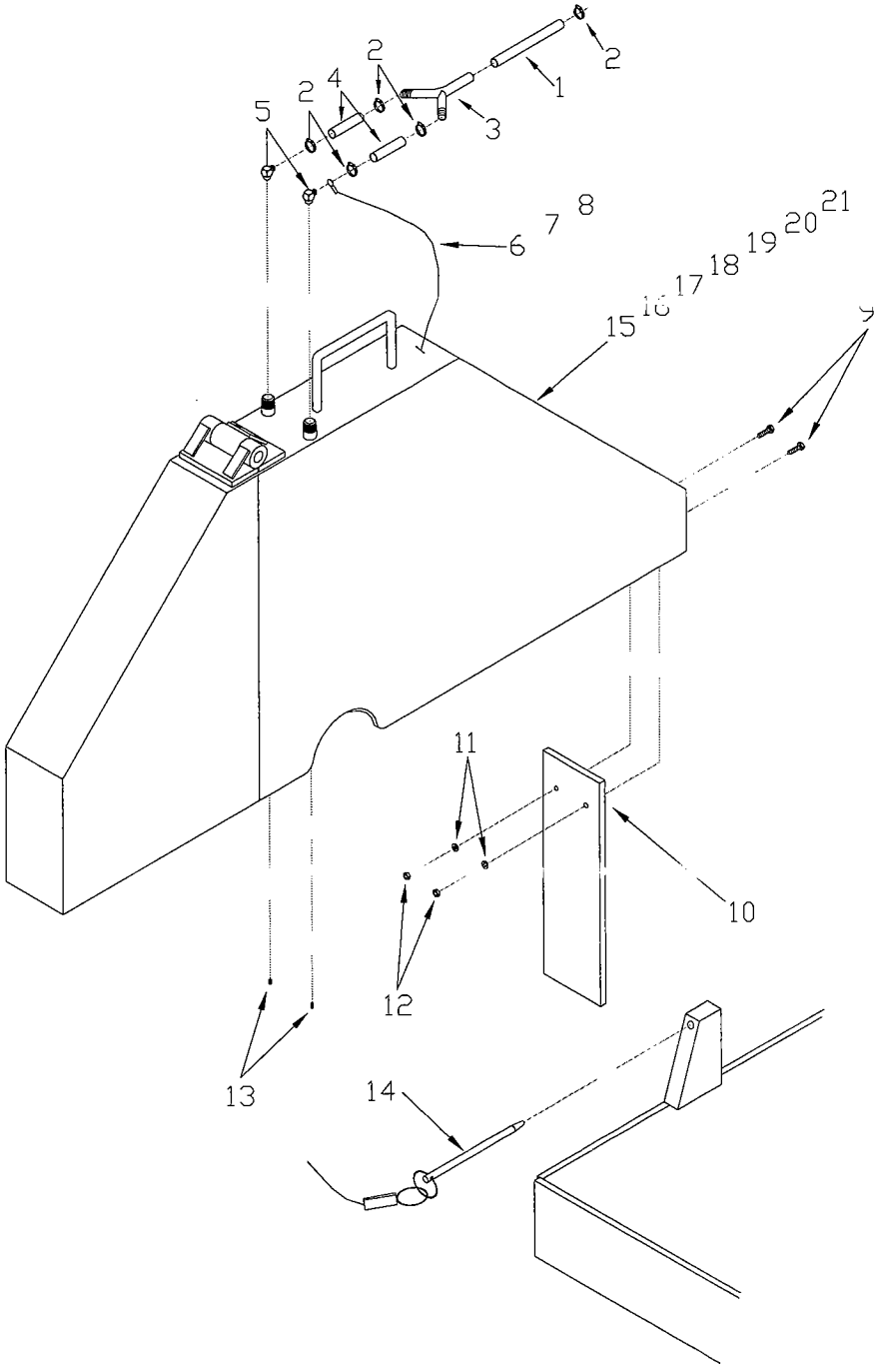
Blade Shaft Group (Non-Jackshaft) 31HP and 61HP



Blade Shaft Group (Non-Jackshaft)

ITEM	DESCRIPTION	PART No.	ITEM	DESCRIPTION	PART No.
1	SEE STUB SHAFT GROUP	-NA-	12	WASHER 5/8 SAE	8172013
2	SCR 5/8-11 X 2 1/2 HEX HD CAP	8041144	13	COLLAR OUTER 4-1/2" w/DRIVE PIN (14", 20", and 26" Blade Sizes)	N1E0019
3	WASHER 5/8 SPRING LOCK	8177016	13	COLLAR OUTER 6" w/DRIVE PIN (30" and 36" Blade Sizes)	N1E0025
4	PLATE BEARING SPACER	237374	14	INNER COLLAR 4-1/2 (14", 20", and 26" Blade Size Only)	N1E0017
5	GREASE ZERK	N1D0077	14	INNER COLLAR 6" (30" and 36" Blade Size Only)	N1E0023
6	SCR 3/8-16 X 1/4 SET	9083112	15	SCR 1/4-20 X 1/2 SET	407035
7	BELT POWERBAND 5/3VX600 (Set of 2) (**14", 20", and 26" Blade Size Only**)	237287	16	KEY 1/4 X 7/8	N1E0099
	BELT POWERBAND 5/3VX600 (Set of 2) (**30" and 36" Non-Jackshaft Blade Size Only**)	236021	17	KEY 1/2 x 5 1/2	9201272
8	PULLEY 4-3/8"D X 2B 10G (**14", 20", and 26" Blade Size Only**)	237221	18	BLADESHAFT 61 HP	237225
8	PULLEY 7.0OD X 2B 10G (**30" and 36" Non-Jackshaft Blade Size Only**)	237222	18	BLADESHAFT 31 HP	237303
9	BEARING TAP BASE 2"	237268	19	DRIVE PIN 3/8X1-3/4"	N1C0095
10	SCR 5/8-11 X 4 RH THD (Operators Left Side of Machine)	N1D0073	20	SCR 5/8-11 X 4 LH THD (Operators Right Side of Machine)	N1D0263
11	WASHER 5/8 SPRING LOCK	8177016			

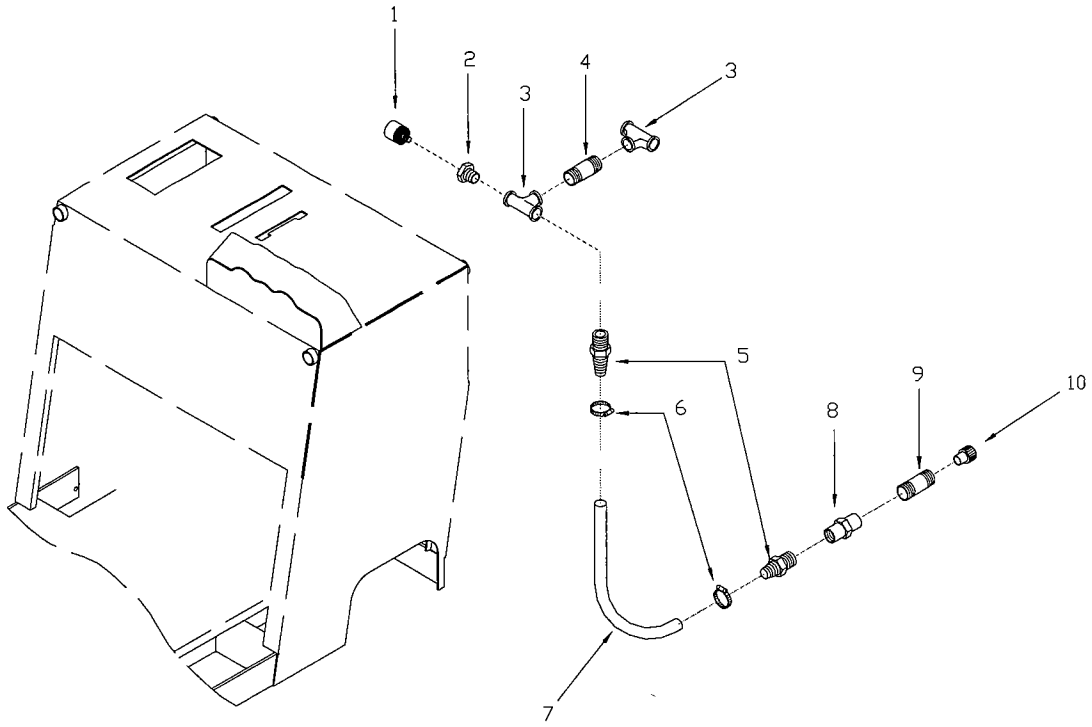
Blade Guard Group



Blade Guard Group 31HP and 61HP

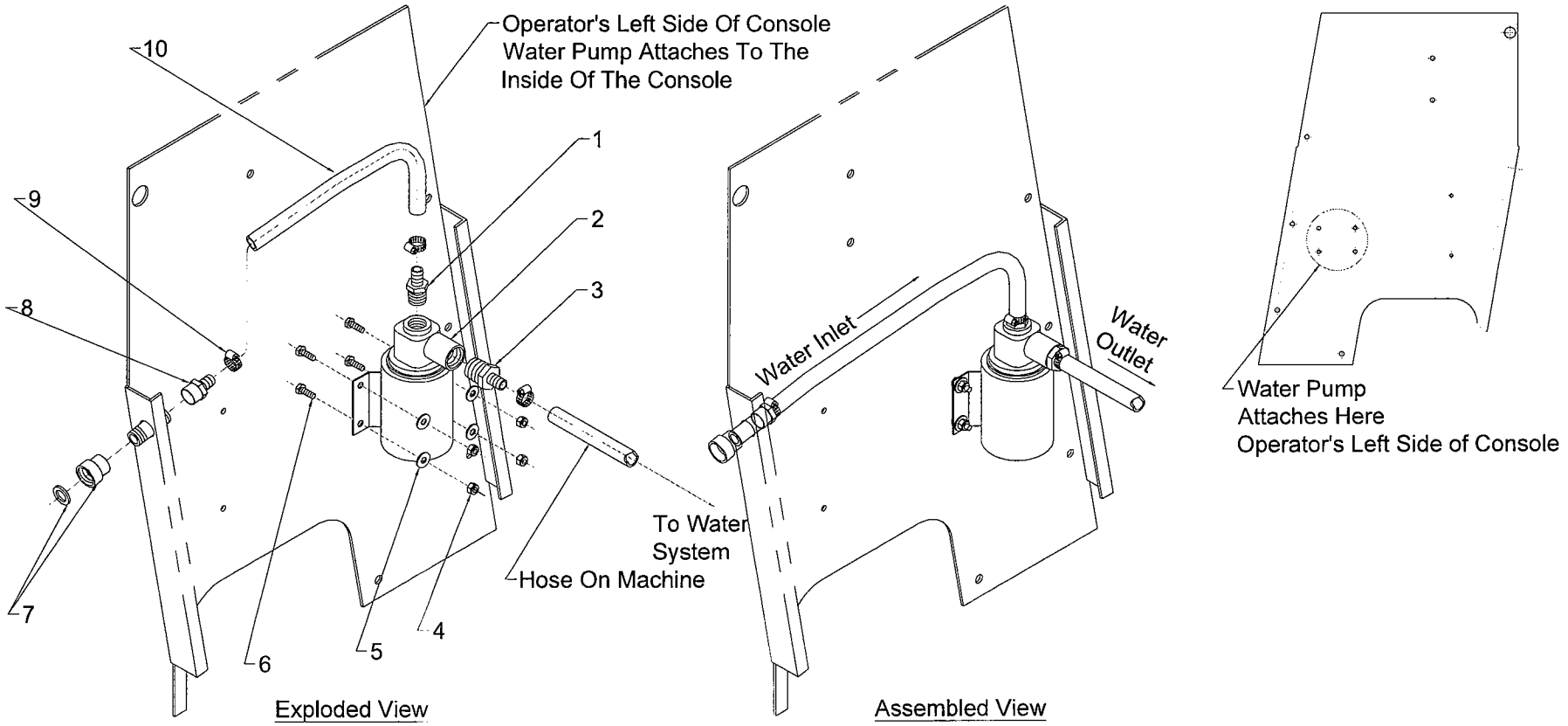
ITEM	DESCRIPTION	PART No.	ITEM	DESCRIPTION	PART No.
1	WATER HOSE 1/2	N1C0114	23	BLD. GD. ASSY. 48" JACKSHAFT	N1B0085
2	HOSE CLAMP	N1C0113	-NA-	SPRING FOR BLADE GUARD (Not Shown)	N1C0476
3	Y FITTING	N1D0095	-NA-	SCR 3/8-16 X 1 1/4 HEX HD (Not Shown)	8041051
4	WATER HOSE 1/2	N1C0114	-NA-	NUT 3/8-16 HEX (Not Shown)	8142003
5	ELBOW 1/4	N1D0112	-NA-	WASHER 3/8 SAE ZN PLT (Not Shown)	8172009
6	LANYARD 14"	N1C0116	-NA-	NUT 3/8-16 HEX LOCK (Not Shown)	8162003
7	LANYARD 18-26"	N1C0117			
8	LANYARD 30-36"	N1C0185			
9	SCR 1/4-20 X 3/4 HEX HD CAP	8041004			
10	SPLASH FLAP	N1C0115			
11	WASHER 1/4 SAE	8172007			
12	NUT 1/4-20 HEX LOCK	8160001			
13	SCR 3/8-16 X 1/2 SET	227107			
14	LOCK PIN WIRING	N1D0087			
15	BLD. GD. ASSY. 14"	N1B0078			
16	BLD. GD. ASSY. 20"	N1B0079			
17	BLD. GD. ASSY. 26"	N1B0080			
18	BLD. GD. ASSY. 30" NON-JACKSHAFT	N1B0081			
19	BLD. GD. ASSY. 36" NON-JACKSHAFT	N1B0128			
20	BLD. GD. ASSY. 30" JACKSHAFT	N1B0082			
21	BLD. GD. ASSY. 36" JACKSHAFT	N1B0083			

Water Control System Group



ITEM	DESCRIPTION	PART No.	ITEM	DESCRIPTION	PART No.
1	SAFETY SWITCH	224496	10	¾ FGH SWIVEL X ½FPT w/WASHER	N1D0082
2	BUSHING 1/2 X 1/8 REDUCING	237420			
3	TEE 1/2" PIPE	N1D0015			
4	NIPLE CLOSE ½ MPT	8411048			
5	HOSE BARB ½ MPT X ½ BARB	N1D0100			
6	HOSE CLAMP	N1C0113			
7	HOSE ½ X 50" LONG	N1C0114			
8	COUPLER 1/2"	237421			

Optional Water Pump Group



Optional Water Pump Group

ITEM	DESCRIPTION	PART No.	ITEM	DESCRIPTION	PART No.
1	FIT BARB ½ MPT X ½ MALE BARB	9600016	6	SCR ¼-20 UNC x ¾ HEX HEAD CAP (Sold Individually 4 Required)	8041004
2	WATER PUMP ONLY	107744	7	¾ FGH SWIVEL X ½FPT w/WASHER	N1D0082
3	FIT BARB ¾ MPT x ½ BARB	9600017	8	FIT BARB ½ FPT X ½ MALE BARB	9602012
4	NUT ¼-20 UNC HEX NYLOCK (Sold Individually 4 Required)	8160001	9	CLAMP WARM DRIVE 3/8 To 5/8 (Sold Individually 3 Required)	227126
5	WASHER ¼ SAE (Sold Individually 4 Required)	8172007	10	HOSE ½ID X ¾OD X 48" 18" Required (Sold In 48" Lengths)	0042521

NOTE: Water Pump Kit 237243 items# 1, 2, 3, 4, 5, 6, 8, 9, 10 are includes all items listed above. Items number 7 & 8: N1D0082 ¾ FGH SWIVEL X ½FPT w/WASHER and 9602012 FIT BARB ½ FPT X ½ MALE BARB are NOT include with the Water Pump Kit 237243, use the units currently installed on the machine.

Saint-Gobain Abrasives, Inc.
2270 West Washington Street
Stephenville, TX 76401-3798

Phone: 800-554-8003
254-918-2310
Fax: 800-443-1092
254-918-2312

NORTON

WARNING

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- **Lead from lead-based paints,**
- **Crystalline silica from bricks and cement and other masonry products, and**
- **Arsenic and chromium from chemically-treated lumber.**

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.